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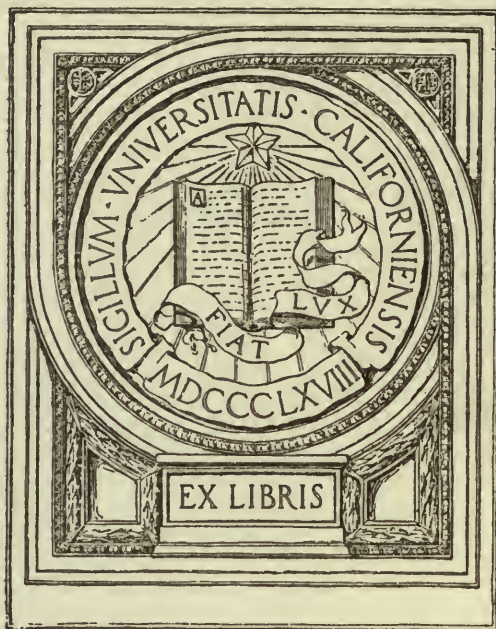
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PALESTINE EXPLORATION FUND,

Annual

1911.

I.

MEGALITHIC MONUMENTS OF RABBATH
AMMON AT AMMĀN.

By DUNCAN MACKENZIE, Ph.D.

L.C.

II.

EXCAVATIONS AT AIN SHEMS
(BETH-SHEMESH).

By DUNCAN MACKENZIE, Ph.D.

III.

THE KHAZNEH AT PETRA.

By GUSTAF DALMAN, D.D., Ph.D.

Hermann
L.C. *1855*

ILLUSTRATED BY PLANS AND DRAWINGS

By FRANCIS G. NEWTON.

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PALESTINE EXPLORATION FUND.

THE MEGALITHIC MONUMENTS OF RABBATH AMMON AT AMMĀN.

By DUNCAN MACKENZIE, PH.D.

AN expedition to Moab, undertaken by Mr. F. G. Newton and myself in the autumn of last year on behalf of the Palestine Exploration Fund, had as one of its objects the investigation of any megalithic monuments that might come within convenient range of our itinerary.

It was not indeed as if we were to make any special point of adding to the copious record of monuments of the dolmen class east of the Jordan made by Conder and others. Our purpose was rather to see whether it was not possible to bring these dolmens out of that state of splendid isolation in which the old-fashioned conception of them as altars had caused them hitherto to appear. It seemed to us specially important to find out, if possible, whether the dolmenic monuments might not turn out to have other and wider connections in the early civilization of Palestine than those of a ritual character suggested by Conder.

Work of the same kind in which we had been engaged in Sardinia, in connection with the Carnegie Trust for the Universities of Scotland, and on behalf of the British School of Archæology in Rome, had brought out results that were not at all calculated to favour the idea that the dolmens of Syria should turn out to lack relations with other megalithic monuments that are general wherever dolmens occur.

The order, however, in which the phenomena presented themselves to observation happened to be the converse in Palestine of what it had

been in Sardinia. In Sardinia, megalithic monuments of a very imposing character—the nuraghi and the so-called Tombs of the Giants—happened to be everywhere, and the dolmen type of sepulchre, to which, with Montelius, it was natural to trace back the origin of the Tombs of the Giants, was virtually nowhere. In Syria, especially about the Jordan, the Dead Sea, and their tributary valley regions, especially to the east, and in Moab itself, the dolmens were everywhere, sometimes in hundreds, and megalithic monuments of any other class seemed to be conspicuous by their absence. In what follows we hope to show that this was largely an accident of investigation. It has to be said, however, to begin with, that the search for megalithic monuments was not Conder's main object in Moab, but the survey of East Palestine. Accordingly it has to be set down as a very high tribute to the energy and enterprise of himself and his valiant companions, especially Lieutenant Mantell, that in the midst of other arduous work, carried on under quite exceptional difficulties and serious risk to life and limb, their record of dolmenic monuments and of regions where they occur should have been such a long one. That was pioneer work of very great importance, and later travellers, like ourselves, for a long time to come, following in the historic sense the time-honoured scientific maxim of going from the known to the unknown, will have to follow in Conder's footsteps.

On the other hand, Conder, embracing as he did the hypothesis that the dolmenic monuments were simply altars, shut off in advance from his mind all avenues or side issues by which he could be led away to contemplate the possible connection of the dolmen with other megalithic monuments in the country.* Considering the main object in view, this was perhaps rather in the nature of a blessing in disguise. Otherwise that gallant company might have become so fascinated with the questions, especially of a strategic character, opened up by the extraordinary megalithic monuments of Ammān that they might never have got any further. Or they would have got entirely off the track and then we should have had no Survey of Eastern Palestine.

The main road to Ammān from the west across the Jordan is by way of Arak-el-Emir and the wady and village of Sur.

Before one reaches Sur and the higher tableland, the broken valley country next the Jordan shows here and there, upon the heights, the sorry

* For a concise vindication of the sepulchral character of the dolmenic monuments, see Vincent, *Canaan*, pp. 417-9.

remnants of what once was primeval ilex forest, and shows us, too, that where once was forest there could with knowing care be forest still. Those massive stumps, so pitiful in their hoary strength, are still darkly and bravely evergreen, and so venerable are they, in this their green old age, that they might well be part of that veritable wood of Ephraim, where, according to sacred story, Absalom met his tragic fate.*

In the Wady-es-Sur itself tall and slender poplars flourish in silted river-beds in regions where no ilex or oak will flourish now upon the naked heights.

Past the village of Sur one emerges on the uplands of Ammon with a contrast of scenery that is startling. The sequestered valleys give place to the desolate upland flats with their grand sweep of Asiatic outlook and their solemn pastoral beauty. The russet earth of the plateau is true earth of Ammon and of Moab, wherever in Moab or in Ammon one may wander on the uplands. In the declining light of late afternoon that mellow hue is tinted to sombre gold or luminous brown and bluest shadow, attuning the mind to an unwonted melancholy that is all pastoral of the Bedawi, as the wide reaches of the East are lit up now with the radiant rose and spectral grey of afterglow. The ever darkling wilderness of the upland undulates up and away and then down and away for long until, anon, with a sure instinct that wanderers and shepherds know of, who have roamed afar in desolate wastes, one feels a change of scene one does not see, and the change is to other valleys and the City of Waters itself.

To guide the feeling of approach there is hardly much more than the more decided fall and break in the undulations of the plateau. And we who are there hardly yet know that we are in valley country, when the evening rose of afterglow has died away to ashy pallor and the shadows of the gloaming have begun to fall.

The valleys are scarcely more than incidents in the perpetual upland, and the wide expanses of the watersheds are but divided tableland, descending almost imperceptibly upon Ammān.

It is by one of those same wide watersheds that we now wend our way along the immemorial caravan route from Jericho and the West to Ammān and inner Asia. The camel track of nowadays follows the Roman road, deviating now and then from that, for reasons which the camel mind knows

* II Samuel xviii, 9-14.

best. The Roman road again follows the primeval caravan route, and where it does not, for the sake of going somewhat straighter, it simply has gone somewhat wrong, and the camel of to-day, after so many centuries, ten to one knows that quite well, and with a surer instinct than even the engineers of Imperial Rome could boast of, follows the older and better way.

It was then, while wondering at these curious deviations, that in the gathering twilight I espied some ruins in front to the left, just as I was trying to see whether the others were still in sight. The irregular mass of the



FIG. 1.—AMMÂN FROM THE ROMAN THEATRE.

ruins stood out with vague yet luminous distinctness in the gloaming, a noticeable diversion of notches and angles in the general monotony of the desolate tableland, half wilderness, half moor, which formed the wide expanse of the watershed.

Though so little was distinct, I had a feeling from the first that whatever the remains were they were of very pronounced megalithic character. On approaching them I saw that there were two separate buildings: the nearer

one a low, rough rectangle, the other alongside of it a more irregular mass, but also showing angles.

On reaching the spot I confirmed my first impressions from the distance as to the megalithic character of the remains. But I was not even yet prepared, on going round to the east side of the nearer building, to find that I was in front of a most interesting dolmenic tomb, with cover-slabs of great size in position and elongated cellas that looked uncanny in the darkness.

I was at once for calling Mr. Newton and the others back, but, alas, while I was looking at the tomb, they had all got well on in front on their way to Ammân.

It was not yet quite dark, and as I got on to the camel track again I espied, somewhat to the right, and very slightly down the south slope of the watershed, another ruin, which from the distance seemed circular, though in the vague light I could not say for certain.

When I got up to it and went round it I found that my first impressions were right and that it was a circular building. And now in the gathering darkness, with no distinct hue of landscape or natural feature to dispel illusion, I could almost have imagined that I was once more on one of those strange desolate uplands of Sardinia, such as the Bitti plateau, and that what I had before me was indeed a nuraghe.

It was now too dark to distinguish any other monuments that might be within view in broad daylight. But enough had been made out in the course of that cursory glance of a very few minutes to afford a happy augury that three such extraordinary monuments could not possibly stand alone in this wide region. The megalithic character of the remains, again taken in connection with the early associations suggested by the dolmenic tomb, made the guess hardly a rash one, that we had to do with monuments of paramount importance in the history of prehistoric Ammon. It was accordingly with feelings of considerable excitement that I now hurried after the others and told Mr. Newton of what I had seen. And all the monumental attractions of Roman Ammon were not enough to prevent us on the Monday from making a nearer acquaintance with these earlier monuments.

A visit to the theatre (fig. 1) was thus but the brief interlude of a radiant morning, and we left Ammân behind us as we retraced our way to westward, by one of those steep valleys, the confluence of whose streams has given to ancient Ammon its early fame as the City of Waters.

On a steep slope to the right of us we espied one of those dolmens with

wall remains above them, recorded by Conder* (fig. 2). The wall remains on the top are very likely the settlement to which the necropolis, represented by the dolmens, would correspond. All this would then be part of earliest Ammon, and on our way we just have to ask ourselves whether there is no historic sequence connecting these primitive dolmenic monuments with the more imposing megalithic remains further away we were now going to visit. This is only a hint in advance, to be on the look-out in case the sequence should turn out to be there.



FIG. 2.—DOLMEN WEST OF AMMĀN, LOOKING W.

Emerging on to the upland in a south-westerly direction, by that same declivity which had brought us down to Ammān, we could now see in clear daylight that the whole region of Rujm-el-Melfūf is much more essentially plateau than valley land: it is not hill and dale, but tableland and valley. What is distinctive is the upland character of wild moorland, and the presence

* *Survey of Eastern Palestine*, p. 23, Dolmen C.

of valleys in the distance is only felt as a more emphatic undulation of the surface where undulations are general. The sense of space and width is everywhere, and whatever is confined or narrow is lost as a mere incident in the grand sweep of that russet landscape, stretching far away to the limitless Asiatic horizon.

Away from the roadway southward, where the slope is gently towards the valley of the Ammān, there stands out with lone distinctness in the wide



FIG. 3.—DOLMEN AT RUJM-EL-MELFŪF, NEAR AMMĀN, LOOKING E.S.E.

expanse a venerable monument of old, and this is Conder's favourite dolmen (fig. 3*). The primitive monument, still mighty in its fall, deserves indeed our veneration as being the strong work of the men of earliest Ammon. It is full twenty minutes away from the dolmen we had previously seen, and it may thus stand as symbolic of that significant expansion of early populations at Ammān, which it may now be hardly fanciful to guess was to bring in fullness of time monuments of the Megalithic Civilization in Rabbath Ammon like

* *Op. cit.*, p. 20, Dolmen A.

those we were going to see. It may be regarded as, at any rate, suggestive of historic sequence to find in one environment with these simple dolmens dolmenic tombs of elaborate and advanced type like that in the distance further west.

After half-an-hour's easy ride from Ammān we approached the western confines of the region, ascending somewhat, but nothing more. To left of us, standing out with lonely prominence on the moorland, we descried the circular



FIG. 4.—DOLMENIC TOMB AT RUJM-EL-MELFUF, LOOKING W.

building which, when I first saw it on Saturday night, had reminded me so strongly of the Sardinian nuraghi. We now knew what had given its name to this whole region of Rujm-el-Melfuf.

We passed on a little further to the dolmenic tomb and adjoining building on the right-hand side of the road, which had been the first grand surprise of our visit to Ammān.

The dolmenic tomb is the monument shown in the picture of fig. 4

looking west. Unfortunately, photography does not give any true idea of what such a monument looks like to the eye on the spot, on account of the small elevation above the surface. This is rather a curious outcome of development, since dolmens of simple primitive type like that shown in fig. 2 have a way of standing out with marked distinctness in the most casual picture. The practised eye, however, will at least discern the two cover-slabs at the dark parts which mark the entrance to two of the cellas. These are the first and the third, reckoning from the right or north end of the tomb. The family affinity of the cover-slabs, with the same feature in the case of simple dolmens like that shown in fig. 2, is, at any rate, discernible at a glance.

We shall gain a much better idea of the monument from the Plans with Sections prepared by Mr. Newton, shown on Plate I.

From these it will be seen that what we have before us is a rectangular construction in massive megalithic masonry running with its greatest length north-south and facing east. This orientation eastward of dolmenic tombs has a wide distribution in the Mediterranean and its periphery as well as in West Europe.

On closer inspection the interior was found to consist of four elongated cellas running west from the east front, constructed parallel to each other and with each of the three interior walls common to two cellas. The walls of the cellas on either side and behind were in rough coursed megalithic masonry, made to project gradually above on the principle known generally as that of the false arch. The common wall between two adjacent cellas had this splaying out so managed that each block as it projected above on either side served for both cellas. This is shown very clearly on Section AA. Here the surface level of the deposit in the cellas is indicated with the lowest visible blocks partially projecting above. These look as if they were orthostatic or set on end, as is so common with monuments of the Megalithic Civilization wherever they occur. In that case they would be the lowest course, and there would be three courses altogether. But owing to the highly sullen and suspicious temper of the Cirkess inhabitants of Ammān any attempt to determine this by actual clearing would have been perilous in the extreme.

The orthostatic system of construction, as is well known, is characteristic of the cella walls of most dolmens of simple type, and in their case the cover-slab usually rests directly on these upright slabs. If there is any intervening masonry it is to begin with only such as is meant to fill up

unevennesses in the heights of the orthostatic slabs themselves, especially with a view to preventing the cover-slab from wobbling.

In course of time, however, the development of the dolmen brings with it an elongation of the cella, in which the orthostatic slabs on either side become multiplied into two long parallel rows, while the original width is kept up, involving only one slab at either end. Simultaneously the one cover-slab becomes a series of such. This is essentially the type of the *Allées Couvertes*

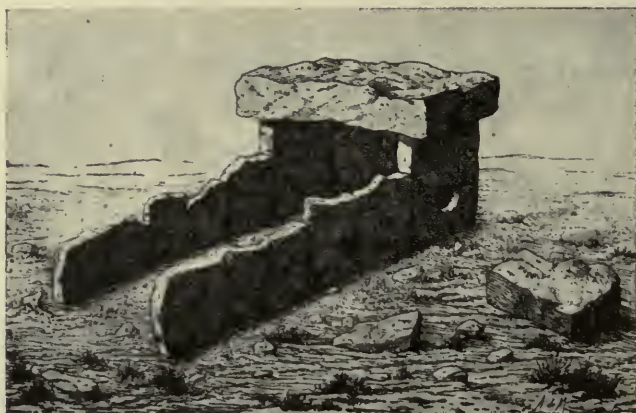


FIG. 5.—DOLMENIC TOMB OF KOSSEIR IN SYRIA.

of France.* But so wide is its distribution within the area of the Megalithic Civilization that it occurs in regions as far apart as Ireland,† Scandinavia,‡ and Italy,§ as well as nearer home in Syria itself. Fig. 5 shows a tomb of this kind near Kosseir.|| Here we have typologically the transition very clearly marked to what may be called the second period in the history of these monuments. The original dolmen is still there, but there is the elongation with multiplication of orthostatic slabs as well.¶

* See Montelius, *Orient und Europa*, pp. 66, 67, figs. 88, 89. The latter tomb is especially interesting as belonging to the entourage of the great megaliths of Carnac.

† *Ibid.*, p. 82, fig. 114a, b, the so-called Calliagh Birra's House, near New Grange.

‡ *Ibid.*, p. 128, fig. 174; p. 129, fig. 175a, b.

§ The dolmenic tomb of Bisceglie, in the province of Bari, *Bullettino di Paletnologia*, xxxvi, pp. 26-32, Tav. I.

|| After Chantre, *Recherches anthropologiques dans le Caucase*, I, p. 61, fig. 19. Reproduced by kind permission of Professor Chantre. See also Montelius, *Orient und Europa*, p. 156, fig. 210.

¶ Compare for Sardinia, *Papers of the British School at Rome*, V, p. 126, fig. 14.

A still further stage in development is marked by a type of dolmenic monument, with equally wide distribution within the megalithic area, which shows a combination of upright slabs below with coursed splayed masonry above. As I have pointed out elsewhere, the constructive advantage of this is that by the narrowing of the span across at the top the size of the cover-slabs is economized, while their carrying power is increased.*

Once we have got a dolmenic tomb like that at Rujm-el-Melfûf, not with one cover slab but a series, and not with one cella but several, the constructive advantage referred to above is increased correspondingly. We accordingly find that as time goes on the tendency is for the pure orthostatic construction to fall gradually out of exclusive use. It, however, hardly ever entirely vanishes in any area of megalithic monuments, and a base course of orthostatic slabs continues to be a traditional characteristic of these throughout the Mediterranean and its periphery, as well as in West Europe as far afield as Scandinavia.

In respect to this process of development the great dolmenic tomb of Rujm-el-Melfûf, with its elaboration of construction and its multiplication of cellas, represents the final and culminating third phase in the evolution of the Megalithic Civilization in Palestine.

Some other peculiarities in the construction of the tomb which have now to be noticed will bring out this advanced character in a still clearer light. The north cella was entered directly from outside by way of a small aperture, the lowest visible blocking stone of which is shown in position on the plan. To left, as one got inside, was a way of access along the front of the other cellas by means of a sort of lateral corridor blocked at the north end.

The three other cellas had one façade entrance between them, and access was got to the different cellas by way of the corridor referred to above. All this was doubtless meant to minimize the risks inherent in a multiplication of separate external entrances.

There is, however, one further distinctly curious feature. The two intermediate walls common to these three cellas are not solid throughout, but have small transverse apertures, by way of which it was possible to get across from one cella to the other without going the roundabout way of the corridor. For this arrangement see the ground plan and Section CC.

In contrast with all this the north cella has a more exclusive appearance.

* See my paper in *Ausonia*, III, pp. 20-22.

The earliest burials may have been made here, and the remaining chambers may then have served more in common for other members and adherents of the family or clan to which the sepulchre belonged.

The tomb was in a fairly good state of preservation. All but one or two of the cover-slabs of the second cella were in position as well as all the cover-slabs of the third cella. The north cella, however, had only one cover-slab in position, that at the east end, and this lurched considerably. The cover-slabs of the south cella had entirely disappeared. The north cella had suffered besides some internal injury.

Externally, from one to three visible courses of megalithic masonry only was preserved, and there is a gap in the middle of the south wall. We thus do not know how the monument was finished above. But analogies elsewhere, glorified for all time in the pyramids of Egypt, may justify us in assuming that in some form or another the rubble filling above the cellas was externally masked entirely with stone.*

The material of construction of the monument is the hard limestone with flint impregnations, called by Conder chert, which is the prevailing stone of the district for miles around.

If now we take our dolmenic tomb in the general connections suggested by its characteristic construction, we are bound to see that the four cellas are just repetitions, side by side, of a unit which is best represented in the north-most chamber. The interior of this, with its splayed masonry and cover-slabs above, is quite indistinguishable from that of a Sardinian Tomba di Gigante. And just as there are Tombs of the Giants with orthostatic slabs instead of splayed masonry, so the orthostatic system of construction, reminiscent of the dolmen, has to be conceived as an anterior phase of development lying behind the period to which our tomb belongs. As we have seen already, this previous phase is represented on Syrian soil itself in the shape of dolmenic tombs like that at Kosseir, which was illustrated above in fig. 5.

The rectangular shape again of the sepulchre is not unrepresented elsewhere nearer hand in Palestine, and the extraordinary group of megalithic monuments at Kabūr ben' Israīm, near Jerusalem, may now be taken as belonging to the same advanced period in the Megalithic Civilization to which

* See my paper on "The Dolmens, Tombs of the Giants and Nuraghi of Sardinia," in *Papers of the British School at Rome*, V, pp. 110-12, with note 1 on p. 111.

we have assigned our tomb.* A fascinating analogy to the rectangular shape of the Syrian monuments is suggested not too far away once more by the pyramids of Egypt. And this suggestion should not be taken without further ado as too far-fetched, since we find other analogies suggestive of primitive affinity as far afield as Scandinavia. Besides, Montelius may be right in finding, further, more than an accidental resemblance between the type of the dolmen and the cella of the pyramid tombs.†

I have already mentioned the orientation eastward of our tomb, and referred to the wide distribution of this orientation in the case of similar monuments all over the megalithic world. On the theory that these monuments were altars, it was natural to connect this orientation with ritual adoration of the orb of day. The cult of the sun is there sure enough, but it is a cult to be connected in this case with ritual of the dead, and the cult is of the sun as lord of life and light in another world than this.

The rite of inhumation, combined with the offering of gifts to the dead, which is common to all burials of the megalithic people, itself presupposes the belief in survival of the soul in another life. But the spirit of the departed must at the same time have a local habitation and a name. This is within and about his sepulchre, which is conceived as his dwelling-place, and in normal circumstances is always near the abode of living kin. It is this localization that makes the orientation eastward of so much importance in relation to the cult of the rising sun as lord of life.

This cult itself, in its general aspects and in its early manifestation in that primitive phase of the Megalithic Civilization represented by the simplest dolmenic monuments, is interesting in connections that are wider than the limits of Ammon or Moab or Edom. And if, as is possible, the megalithic people entered Palestine from Africa, and from some environment not too far removed from what later was Egypt, we should have an explanation in primitive community of origin of a cult of the sun that in after times is seen to differentiate along different lines in Egypt and in Syria. This would then be all long anterior to the cross influences and collusions of a more forced and artificial character of later history, and would go back to days when there was as yet no Canaan at Ammon, and perhaps no dynasty in Egypt.

The juxtaposition of the dolmenic and allied types of tombs to the abodes

* *Survey of Western Palestine*, pp. 100-2, p. 101 fig. in text.

† *Op. cit.*, pp. 165-6. See also my paper cited above, p. 136.

of the living, touched upon above, is a widespread phenomenon of sepulchral usage in the megalithic world. And the observation of this phenomenon is of paramount importance to the understanding of the true nature of these monuments.

Unfortunately, however, the erroneous and old-fashioned conception of the more simple dolmenic tombs as altars, and of the more elaborate ones like our own megalithic Stonehenge as druidical temples and what not, has itself barred the door to any rational investigation of the phenomena in their real connections.*

The result has been the "splendid isolation" in which these monuments have been suffered to remain to the present day. And indeed with Stonehenge it has been as if it were almost a sacrilegious crime to degrade anything so sublime as a druidical temple into anything so pitifully superstitious as the localization of ancestral spirits in a family tomb.

The mania for altars and high places is still rampant in Palestine, and this again has led to an entire misunderstanding of certain very touching rites in connection with the cult of the dead. Thus, for example, the so-called cup-markings on the cover-slabs of the more simple altar-like dolmen tombs have called out a plethora of dreary speculation with no better reason, forsooth, than that these monuments, being altars, anything so entirely human as meat and drink offerings to the dead was not to be thought of. And yet after millennia of years we still feel the poignant pathos of a faithful and haunted memory in our own ritual offering of lily and rose and immortelle on the last resting place of dear ones dead long ago.

A direct result of all this lack of understanding has been an attitude towards these monuments which has persistently vitiated all inquiry into their character up till the present day. List after list of such monuments appears in every book about them without there being the least indication or clue as to the whereabouts or existence of the habitations they belong to. This is all the harder on the greater family tombs, like that at Rujm-el-Melfûf, because in their case the local relation to a corresponding habitation is constant and widespread all over the megalithic world. To take the quite typical case of Sardinia, the Tombs of the Giants are always in the vicinity of some nuraghe.

* Sir Arthur Evans, who connects these monuments with sepulchral cult or its direct offshoot in chthonic religion, has for long stood practically alone in a true understanding of Stonehenge. See *Præhistorische Zeitschrift*, II, pp. 295-6; *Archæological Review*, II, pp. 312-30.

And this has accordingly to be taken as the residence of the family to whom the tomb belonged.*

If the type of monument concerned is once given a name and character, inconsistent with its true nature, the spread and perpetuation of error are given a free hand. This is well illustrated by a fatal mistake of Pinza's, who in his anxiety to make out that the nuraghi were themselves a special type of tomb alongside of the Tombs of the Giants, duplicated these, while he left both without any corresponding habitation.†

Isolate your phenomena, is a maxim of science, but it must be isolation that is conscious of its purpose and does not leave the context in which the phenomena occur out of account.

This isolation of the phenomena in the interests of ignorance is itself a curious phenomenon of inquiry. It mimics the processes of science with a result that is the very opposite of that. And it is a process that pervades all inquiry with a penetrative force of inertia, the whole secret aim and purpose of which are to defeat knowledge and perpetuate ignorance. It is the bad world-spirit, father of untruth, rampant in the realm of intellectual things. His chosen allies are from the rank and file of science itself in the guise of persons of retrograde and inadequate ideas. And they have to be for ever fought against in shining armour and with our brightest steel.

But there can be no question whatever of any sort of isolation in the case of the dolmenic tomb of Rujm-el-Melfûf. The habitation of the living to which that belonged stares one in the face just alongside. This is the building, the ruins of which are shown in the picture of fig. 6, looking north from the top of the sepulchre, which is in the extreme foreground. Unfortunately, the jumble of fallen blocks from the upper parts of the building makes an intelligible photograph impracticable.

We shall thus gain a much better idea of the edifice from the drawing by Mr. Newton, shown on Plate II. Here the building in question is exhibited in its relation to the tomb we have just discussed.

What we have got before us is an irregular rectangular construction with its greatest length running north-south. This has two projecting bastions

* See my paper, "Le Tombe dei Giganti, nelle loro relazioni coi Nuraghi della Sardegna," *Ausonia*, III, pp. 18-48.

† *Monumenti Antichi Lincei*, XI, pp. 238-55.

right and left at the south end, and a shallower projection at the west end of the north wall.

The building has two flights of rooms running north-south. Three have free outlook west and four east, although it is possible that the central enclosure on this side may have been an open court.



FIG. 6.—MEGALITHIC RESIDENCE NEAR DOLMENIC TOMB AT RUJM-EL-MELFÜF, LOOKING N.

The construction was to a large extent piecemeal, and it is quite noticeable that the middle room on the west side is a separate unit in construction. It thus has the appearance of having formed the starting point in the operation of building. The rooms north and south are constructively added on, although they are not therefore necessarily later than the central one.

The east part looks likewise added on to the west. Thus the construction is by addition of unit to unit, not by internal subdivision of a single whole.

There are no openings discernible in any of the walls visible, and it is thus possible that the living rooms were on an upper floor. This arrangement

would agree with the massive unbroken fortress-like character of the masonry visible. This tends to be less massive and to contract as it ascends.

The projection of the masonry in position above the general mass of fallen blocks is discernible on the Sections AA, BB. From these it is apparent that the building is best preserved on the west and north sides, and worst to south and east. The west wall is partially preserved for from five to ten courses, the north for five complete courses, with part of a sixth towards the east end. The south is just barely traceable except at the south-east corner, which shows part of six courses in position.

The material of construction, like that of the dolmenic tomb already described, is the flinty limestone chert of the district.

A peculiar feature is the curved construction adjoining the main building on the north side.

This turned out to be of very great interest. What we have is a small dolmen cella in coursed megalithic masonry, which is splayed inwards all round in the interior on the principle of the false arch. There are three courses visible, the topmost one being much shallower than the lower two. The whole was probably capped by a large cover-slab, like those common in dolmen construction generally.

The larger enclosure on the north side is in orthostatic construction, such as is common in Malta, Sardinia, and elsewhere in the Mediterranean area and in West Europe.

The whole was possibly an enclosed sacred area for ritual purposes connected with anniversary feasts in honour of the dead. There are analogies for such enclosures in connection with megalithic sepulchres elsewhere as in Sardinia.*

There can be hardly any doubt whatever that the tomb belonged to the building adjoining it, and it may very well have been the sepulchre of the original builder himself. In that case the more imposing tomb on the south side would have been the family mausoleum of later generations.

Before leaving the residential building with dolmenic tomb just described, it will be well to say a word about the immediate environment.

Going along between the house and the tomb, in an east-west direction, the remains of a massive wall are indicated on Plate II. At the tomb this

* See my paper, "The Tombs of the Giants and the Nuraghi of Sardinia in their West European Relations," *Memnon*, II, p. 194, fig. 15.

changes its direction by a quick curve from east to north. Parallel to it, on the west side, a second line of wall is shown going north from the north-east angle of the house. It is possible that the approach to this was between the two. The main wall probably went down to the valley-bed on this side, but we were not able to trace it out in any detail.

The part running west between the residence and the tomb takes a long flight in this direction and then curves north like the other towards the valley. The part enclosed is thus a long irregular rectangular area, and at the west end I was able to make out several circles, which were evidently the remains of bastions and towers of outlook connected with the strong wall. Sometimes the circles were in the construction of the wall, sometimes separate on the inside, in which case they were probably huts of retainers within the walls.

On the north side I was not able to make out that the walls were continuous alongside the river bed. Indeed, certain wall remains ran down to the valley and then stopped short. This would seem to indicate that the enclosed area was regarded as including the river, not as excluding it.

The wall of circumvallation has many analogies elsewhere, notably in Sardinia, where, indeed, it is the order of the day in the megalithic civilization represented by the nuraghi.*

In this connection the position also of the main building within the fortified enclosure is very significant. It occupies the crest of the watershed between the north valley and the south valley of Rujm-el-Melfûf. All this comes out in the south direction in fig. 4. Here the ascent north, though very gradual, is discernible in the picture, but once the residential building is passed, as one goes north the surface begins as gradually to fall, and at length descends rapidly to the river bed. The fall on either side in the environment of the building is very slight, but it is enough to give that a point of vantage in both directions.

Northwards it directly commands the adjoining valley, while the valley to the south, which is at a much greater distance, could be reconnoitred by means of some half-way fort like the circular building already referred to, which gives Rujm-el-Melfûf its name. This directly commands the southern valley.

We have thus to do with a system of fortification arranged with a view

* *Ausonia*, III, p. 36, fig. 20. *Memnon*, II, p. 20; Tav. IV, fig. 2; Tav. VIII, figs. 1, 2, p. 199, fig. 20.

to the strategic function of the units composing it in relation to points of vantage, themselves dependent on the peculiar lie of table-land and valley, characteristic of the environments of Rabbath Ammon. This will all come out in a clearer light presently.

But we must not forget about the circular building just referred to, which on the Saturday evening had reminded me of a Sardinian nuraghe. The picture shown in fig. 7 will convince anyone familiar with such monuments that the first impression was entirely justified. There are numbers of simple nuraghi in Sardinia and talayots in the Balearic Isles preserved for a few courses, which look exactly like the monument shown in the picture.

Nothing could make the resemblance more striking than comparison of our fig. 7 with fig. 8, which exhibits a talayot of Majorca published by Bezzenberger.* The only difference in the whole picture consists in the trees and the prospect of mountains in the Balearic landscape, while both are absent at Rujm-el-Melfūf.

The interesting monument which gives this whole region its name lies a few paces off the road to Ammān on the right-hand side, and a very short distance of about five minutes nearer Ammān than the monuments already described in a south-south-east direction. It is situated on ground which slopes away very gently south towards the rapid descent of the valley which bounds Rujm-el-Melfūf on the south. The picture shows the monument looking north, and the ascent in that direction, though perceptible, makes no impression in the grander undulations of the landscape.

The character of the building as a whole will best appear from the Plan and Section of Plate III.

In view of the orientation of our tower of outlook in relation to the high road, it is probable the doorway was on the north side. Here there is a gap in the masonry which may mark the position of the doorway. A curious fallen block on this side, rising to a shallow angle above, suggests that it may have fitted into a triangular aperture of splayed masonry, meant to relieve pressure on the lintel of this doorway. This interval above the doorway to obviate fracture of the lintel is a common device in the architecture of the

* "Vorgeschichtliche Bauwerke der Balearen," *Zeitschrift für Ethnologie*, XXXIX, p. 600, fig. 27. I have to thank Professor Bezzenberger for courteous permission to make use of this picture.



FIG. 7.—MEGALITHIC ROUND TOWER AT RUJM-EL-MELFÛF, LOOKING N.



FIG. 8.—TALAYOT IN MAJORCA.

megalithic world, while the triangular masking block attains to its apotheosis in the Lion Gate at Mycenae.

Inside, and to left of the gap where we suppose the doorway to have been, there are traces shown on the plan of an internal wall running south and having a face distinguishable on the west side. Between it and the curving left-hand external wall of the building there appears to be an interval. With the analogy of the nuraghi in one's mind, one is tempted to imagine in this interval a stairway ascending to an upper story. The interval in the masonry is there as shown on the plan, but without some clearing of the fallen blocks which encumber the interior it would be difficult to decide the matter one way or the other. Such a stairway, did it exist, would make the analogy with the nuraghi a very close one indeed.

For the analogy to be complete there should have been the guardian's niche on the right-hand side of the entrance corridor and the three niches, right, left, and behind, of the cella which are so characteristic of the Sardinian nuraghi.* These are lacking, and their absence brings our circular building more into affinity with the talayots of the Balearic Isles, which have no niches.

The building is best preserved on the south-west side, where six courses of rough megalithic masonry and blocks of a seventh are preserved.

An accumulation of fallen blocks on the east side may indicate the position of some kind of bastion, but nothing in the way of walls is distinguishable. On this east side from five to six courses of the round building are discernible. On the north side is the gap where we suppose the doorway to have been. On this side also, at an interval of a few paces, is a heap of blocks which may have belonged to some sort of outwork, defensive of the doorway.

We have to reconstruct the interior with splayed masonry and beehive arching above. From external appearances we cannot be quite certain of the former existence of an upper story, but if there was one there would have been windows or other openings commanding outlooks of strategic importance, and a wider sweep of vision could have been effected by means of a terraced battlement at the top.

The masonry of the building is in rough coursed megalithic work of

* Compare *Papers of the British School at Rome*, V, p. 94, fig. 2.

primitive appearance, and the material of construction is the flinty chert of the district.

But there were still greater surprises in store for us than the round tower of Rujm-el-Melfûf. While we were engaged in investigating the dolmenic tomb and residential building described above, it was no small distraction to have our attention constantly called away by the portentous appearance of a great circular building that stood out imposingly in the distance to eastward on the plateau just above the steep declivity of the northern valley. The strategic purpose of the



FIG. 9.—MEGALITHIC FORTRESS WITH ROUND TOWER AT RUJM-EL-MELFÛF, LOOKING E.

position of the edifice was clear even from afar. It stood upon the table-land commanding that with far-reaching outlook over the upland, but it commanded the valley also with a *qui vive* that was up as well as down.

When at length we were able to satisfy our curiosity near at hand, the building that presented itself to our view as we approached from the west was that shown in the picture of fig. 9. This view eastward was that of a circular edifice of enormous dimensions, showing a contraction of the walls upward which suggested beehive arching in the interior above. People familiar

with the Sardinian nuraghi will at once see the close resemblance, and, indeed, Nissardi himself, the veteran connoisseur of these monuments, would be justly proud to find on Sardinian soil a nuraghe of such tremendous dimensions as this monument. But with all its grandiose proportions what it would correspond to in Sardinia would be a nuraghe of simple type with single cella, like many on the Paulilatino uplands and in the plains to west of Macomer.

It will be noticed that the picture shows a wing of masonry on either side, which is in rectangular construction. This rectangular construction now would in Sardinia be of an entirely startling character, for there any complex added to the original central cella is like that once more in circular or curved construction. The famed nuraghe of Losa, near Abbasanta, and that of Santa Barbara, near Macomer, are typical in this respect.* Accordingly, on passing round the circular edifice to the east side of that, the rectangular wings we had already noted in the near distance prepared us for features of a novel character nowhere represented in Sardinia. The rectangular wings were simply the west end of a whole complex of rectangular chambers stretching east and north with no curved wall anywhere to be seen. Thus, if he were with us as in those pioneer days in Sardinia, nobody would be more surprised than Nissardi himself to see anything so unlike the expectations raised by the great circle on the west side as this mass of straight-walled chambers.

The character of all this will be best realized from the Plan shown on Plate IV. Here the difficulty of fitting on the rectangular to the curved structure is particularly apparent. Section AA brings out very clearly the relative state of preservation of the circular and the rectangular construction. And if the enormous curved mass of the circular chamber shows that it has stood the assaults of time and war much better than the rectangular construction alongside of it, the whole subsequent history of the round bastion in fortification is there to justify it.

Taking the plan of the building as a whole, it will be seen that the circular edifice is a repetition on a much larger scale of the round tower of Rujm-el-Melfûf already described. The rectangular construction, again, is of the same general megalithic character as the smaller building in rectilinear masonry alongside the dolmenic tomb further west, from which we had just come.

* For nuraghe Losa, see *Monumenti Antichi Lincei* XI, p. 114, fig. 71; p. 122, fig. 75, Tav. VII, VIII.

The approach to the building was evidently from the north along the avenue between walls on either hand, visible on that side. Here, on the left-hand side, was a massive double bastion in rectangular construction, while on the exposed right-hand side of any enemy attempting to enter the building was the formidable menace represented by the stupendous mass of the circular bastion there. Once inside, the case of such an enemy was likely to be parlous indeed, for he would now be hemmed in within the sharp angle of the left-hand bastion and the aggressive bulge out of the round tower.

The great circular chamber was apparently entered from the east side, where a gap in the masonry may represent the position of the doorway. On going inside we found that there were no niches in the interior like those so characteristic of the nuraghi, and as the smaller circular chamber already described had no niches it may be assumed that these are not typical of the Syrian megalithic monuments. In this respect the circular chambers of Ammon show a closer analogy to the talayots of the Balearic Isles than they do to the nuraghi with their characteristic niches.*

There is also no possibility of a stairway in the interior of the wall like that of the nuraghi, for the corresponding thickening of this is lacking. But there may have been some means unknown to us of getting to an upper floor or to a battlemented terrace on the top.

The entrance way continues eastward into the rectangular part of the building, leaving on the right-hand side a large chamber with doorway at the east end of its north wall and having two small walled areas behind, with no visible appearance of doorways. These all abut externally on the great circular chamber, but they have no direct access to it. The long rectangular area running north-south at the east end of the building looks like a court with outhouses.

A noticeable feature of the building as a whole is the wall of circumvallation, which can be traced sweeping round west from the entrance avenue and then south.

Remains of walls, including those of a small rectangular edifice within the enclosure on the west side, show that the great building we have just described did not stand alone, but that the wall of circumvallation afforded protection to the retainers of the overlord who ruled within.

* Compare *Zeitschrift für Ethnologie*, *loc. cit.*, p. 595, fig. 22; p. 605, fig. 33. Montelius, *op. cit.*, p. 170, fig. 23ob and c.

The strategic character of the building comes out not only in the arrangements we have described, but in its position. As shown in the general view of fig. 10, it stood upon the wide plateau, commanding that with far-reaching outlook over the uplands, but it controlled the valley also beyond it on the north side, with a sweep of vision from the great circular tower that was up and westward as well as down, where lay the megalithic City of Waters.



FIG. 10.—MEGALITHIC FORT WITH ROUND TOWER AT RUJM-EL-MELFŪF, LOOKING N.

It did not command directly the more distant valley of the Ammān to south of Rujm-el-Melfūf, but it could do so indirectly by means of forts in sight in that direction, which by their position on the edge of the slope down south to the river-bed could command that directly and communicate any necessary signal.

From what has been said it is evident that the whole position and system of these fortified buildings was consciously sought out with a view to their peculiar function of defensive outlook. It is a sort of blockhouse

system, having relation to the whole exceptional character of the landscape of Ammon similar to that which, as pointed out by Nissardi, and after him by others, is characteristic of the nuraghe system of all Sardinia.*

This landscape of Rujm-el-Melfūf I have already characterized as elevated plateau masking important valleys, which, to the eye, at a distance look mere incidents in the general majestic sweep of those upland flats. This peculiar character comes out very well in the picture of fig. 10. Here, looking north, what impresses one is the distant view over the table-land, and the steep valley running east on the other side of the building is hardly more noticeable to the eye than it is in the photograph. On walking past the building, however, in the same northward direction, one finds that the valley, like all the others about, has considerable profundity, and that it is only with some effort that one can conveniently descend into it and get up the other side. One thus realizes how misleading is the conception one gets of such a valley from a point of view like that shown in the picture. A whole army might pass down the valley upon Ammon and escape all attention from such a point of view. But once get to the spot where the fortified building is and the valley beyond is visible down to the river-bed.

Strategic considerations of this kind, consciously thought out and put into practice, presuppose in turn long previous experience; and this bears out once more our other conclusions as to the advanced period in the Megalithic Civilization to which these monuments of Ammon belong.

The much better preservation of the circular part of the construction, as compared with the rest, has been already referred to and shown in the Section. It comes out with equal clearness in the picture of fig. 10. The greater massiveness of its construction is also observable on the Plan.

The round chamber is best preserved on the west, north-west, and north sides. On the west side eleven almost complete courses of solid coursed masonry are observable. On the north side there are twelve courses and a block or two of a thirteenth course. To east, where we assume the doorway

* *Atti del Congresso Internazionale di Scienze Storiche* (Roma, pp. 1-9, Aprile, 1903), V, pp. 653-5. *Ausonia*, loc. cit., passim. Peet, *The Stone and Bronze Ages in Italy*, pp. 228-30. Cavaliere Nissardi's authoritative voice has been for too long the *vox clamantis in deserto*. To him alone belongs the lasting merit of having first comprehensively understood the true strategic character and function of the nuraghi. And the Italian archaeological authorities, before it is too late, will do well to see to the completion and publication of Nissardi's great map of the distribution of the Sardinian megalithic monuments.

to have been, there is a gap, probably kept clear by Bedawi shepherds anxious to set up folds within for their flocks and herds. A pathway has been cleared up into the interior, and the cella has indications of having been used as a shelter by the shepherds.

On measuring the building one sees that the diameter of the circle is greater than is usual in Sardinian nuraghi, but there is the same batter of the walls externally, and this suggests that, notwithstanding the greater diameter, the construction was domed on the principle of the false arch, like the nuraghi.

The diameter across the topmost course is 20·15 metres, and this is greater than that of any nuraghi we have measured in Sardinia.

The internal diameter is 15·60 metres, and even this is greater than the ordinary external diameter of a Sardinian nuraghe.

The interior is filled up with fallen blocks to such an extent that only three or four courses are visible, but it is at once apparent that these are splayed, as would be the case were the chamber domed over.

The width of the wall at its present top is 2·30 metres. This width is practically uniform at this height, and there is no enlargement right or left of where we suppose the doorway to have been. It thus seems clear that there was no stair in the wall ascending to upper floors, such as would be suggested by the analogy with the nuraghi. But the builders of such monuments were quite capable of devising other means of ascending to upper floors, and it is difficult to imagine a great tower of outlook like this without at least some sort of battlemented terrace above.

The possibility, however, that a circle of such enormous diameter may not after all have been roofed over or have had a true upper floor is suggested by the brochs of Scotland. But, on the other hand, these had stairs and living rooms in the thickness of the wall itself, which could not have been the case with the great towers of Ammon.*

The great rectangular construction joining on to the round tower on the east side has a projection eastward of some 27 metres, and a width north-south at the east end of about 28 metres.

There can be no doubt whatever that this rectangular construction is of the same character and period as that adjoining the dolmenic tomb at the

* See Montelius, *op. cit.*, p. 183, fig. 246a ; p. 184, fig. 246b and c.

west end of the site described already. It is built piecemeal in the same way. The south wall projects from the south wall of the round tower in such a way as to present the right wing shown in fig. 9. With the exception of a projecting base course at the west end and a slight return out in its east half it is continuous in one line. The east wall has a shallow bastion in its north half. The north wall projects by means of a slight return in its east half and then goes on straight west to an angle, into which is fitted the double bastion to left of the entrance avenue. It is the inner part of this bastion that appears as left wing in fig. 9.

As observed already, this rectangular part of the building is not nearly so well preserved as the circular construction. Five or six courses of masonry at most can be made out above the present surface here and there, while at other parts the walls just appear above the fallen blocks encumbering the building.

The material of construction, as is usual in this whole region, is the chert of the district.

Once the strategic purpose of these megalithic buildings and their mediative relation to each other became clear, it was natural to scan the landscape for other edifices of the same kind.

It was thus that our notice was attracted to some ruins that, from the point of view of the building just described, were discernible on the north side of the adjoining valley in a north-easterly direction.

After some twelve minutes' ride, which would only have been about five were there no valley but only plateau, we arrived at the building shown in the Plan of Plate V. Unfortunately, the present slight elevation above ground of the ruins and the descent south did not admit of our obtaining a satisfactory photograph.

The building, notwithstanding the slight slope down south, is still really on the plateau and moved back somewhat from the steep slope of the wady. No doubt its position in the blockhouse system had relation to points of vantage on the plateau other than the outlook up and down the valley. But it was at the same time in quite direct view of the great fort with round tower we have just described.

The edifice was entirely in rectangular construction, and in its greatest length ran east-west. It consisted essentially of a great central quadrangle, subdivided near its east end by a wall going north-south, and flanked at either end by a massive projecting bastion.

As seen in Section AA, the projecting chamber at the west end looks nothing different from the section of the circular chamber, which forms so characteristic a feature of the other building across the valley. Both look as if in origin they had identity of function in the scheme of the whole building. It is especially noticeable that the circular construction has all straight walls connected with it, built up against it but not fitted into it, and this method was inevitable and necessary towards the stability of a circular building. But it is to be noted that the rectangular chamber at the west end of the present building also has the walls of the great central quadrangle going up to it on the north and south sides not fitted into its construction, but built up against it as in the other case. This would seem to show that the rectangular construction is a substitute for a type of tower in the system which originally was more commonly round, but here appears ousted altogether in favour of thoroughgoing rectangular construction. Only the joints of the walls fitted on to it on either side seem to preserve a traditional reminiscence of an earlier state of matters, and of a time in which circular construction played a greater rôle than at the end of the Megalithic Civilization to which these extraordinary fortified buildings would seem to belong.

It has been already noticed that the habitation with dolmenic tomb alongside of it at the west end of Rujm-el-Melfûf has the middle chamber on the west side forming a constructive unity by itself. In this case also the adjoining walls fit on to, but not into, the central construction. And it now looks as if here also we had the reminiscence of a time when circular chambers were more common in the same position than they came to be in this great final period.

The entrance to our building was apparently about the south-east corner. Here on the left side it is indicated that the south wall must have continued further east. On the exposed right-hand side was the projecting bastion at the east end of the building referred to already. This has an entrance with guard's porch at the west end of its south wall. The interior is divided into two apartments of unequal size. The larger one next the entrance looks like a common mess-room of retainers, the smaller chamber at the back may have been a sleeping room.

The east end of the quadrangle is divided off from the rest of it by a wall running north-south, and we were not able to ascertain whether there was any direct communication across this wall. The area thus separated off may have been a sort of stable for horses or outhouse for other cattle, and

there is every probability that in its well-guarded position it had direct communication with the entrance.

From the strategic point of view it would seem as if the rectangular construction at the west end, with its adjoining court, were much the more important part of the building. And the massive construction of this tower of outlook may suggest that it was built higher than the rest. The fact that it is so difficult to trace out the doorways may mean that these were avoided as much as possible on the ground floor, and that there was an upper story or stories to which it was possible to ascend by ways of access not now traceable on the surface.

It will be seen from the section that our rectangular bastion has not stood the test of time at all so well as the great circular tower of the building across the valley. Neither here nor elsewhere does the section show more than three or four courses above ground.

The greater symmetry and balance of the edifice, as compared with those already described, are visible at a glance. And a certain appearance of elegance thus attained to, suggests at once that the building belonged to a very advanced period in the megalithic civilization of Ammon.

It has been already remarked that the edifice, seen near at hand, was found to stand back somewhat from the slope down of the valley. It was thus apparent that it did not command the valley in the same way as it did the plateau, and there probably were special strategic reasons for this.

On our approach to the building from the west side, however, we had noticed next the valley on the right-hand side a much smaller edifice of simple rectangular type. This, on inspection, was found to command the valley much more efficiently than did the other. The interval between the two buildings was so small that the one next the valley could hardly be more than a dependency of the more important edifice. It was possibly meant to relieve the other of the necessity of a constant *qui vive* up and down the valley, which the lie of the ground did not allow those in command of the greater building to exercise directly in view of the paramount importance of its outlook over the plateau.

The smaller building referred to runs east-west, and is in a line south-west between the west end of the greater edifice and the important fortification with round tower on the other side of the valley. On the west side, as well as on the south towards the south-west angle, the building is preserved for some two or three courses above ground.

Both buildings, like all the others, are in megalithic construction, with a noticeable batter and in the flinty limestone chert of the district.

The projecting rectangular bastions are common to all these buildings, with the exception of those that form a single rectangle like the above.

We had now seen enough in the region of Rujm-el-Melfūf, and the valley and plateau country on the north side of it, to understand in a general way the system of blockhouse fortification in vogue at Ammon in the days before Canaan. It was clearly a system developed out of very peculiar local conditions, and depending on that exceptional relation of table-land and valley that prevails in the environments of Ammān. As such, it was manifestly adapted towards maintaining constant possession of those valleys, on which, throughout its history, must have depended the whole life and prosperity of the City of Waters from the very earliest days.

The question now, then, was :—Would the same system of fortification turn out to prevail to the south of Rujm-el-Melfūf and to east of Ammān? The wady south of Rujm-el-Melfūf is the main valley of Ammān, and there are minor valleys connected with it which unite their waters with this in times of rain. To account for the relative abundance of water further east, even in the rainless part of the year, it is possible that there is some sort of underground flow all the year round.

Even from the distance of the round tower, which gives Rujm-el-Melfūf its name, masses of ruins were discernible here and there in the upland region to the south, and it was not difficult to guess that some of them, at least, were of the same megalithic character, and performed the same function of blockhouse fortification, as the buildings already described. While Mr. Newton was engaged elsewhere, I made a reconnaissance of the region and visited four such buildings. The result was that with so many about we were able to investigate in detail only one that seemed to us to stand out as most typical of the general strategic purpose of these monuments.

From the distant point of vantage afforded by the environment of the Melfūf tower, the ruins that made the most distinct impression of importance were those of Humrawiyeh, which were visible somewhat to south of east on the other side of the valley. Of all the ruins discernible in the south direction these were the ones that stood furthest east, and nearest to Ammān itself. On the direct way from the round tower of Rujm-el-Melfūf, as one descends very gently eastward, one leaves Conder's dolmen (fig. 3) on the right and

then descends more rapidly into the valley of the Ammân. On reaching the other side, one makes a somewhat steep ascent south-south-east, and a short ascending curve south-east and east on to the top of a wide spur of hill, stretching down north towards the valley. The ruins are on a knoll which descends rapidly on the west and north sides, slightly to the east, and ascends gradually to the south, until it becomes one with the wider reaches of the dominant table-land.

The most important outlook is thus northwards, and this commands a considerable stretch of the main valley, as well as the grand upland sweep, beyond that again, of Rujm-el-Melfûf. Here the strange hulking mass of Conder's favourite dolmen stands out with angular distinctness near the west end of a rounded spur which descends rapidly into the valley. Beyond the dolmen to westward is the round tower of Rujm-el-Melfûf, and north-west of that again is the dolmenic tomb, with adjoining residence, which had first attracted our attention to this whole series of monuments.

The ruins, with their jumble of fallen blocks, did not stand out sufficiently in elevation to enable us to get any intelligible photographic picture of the whole. It was thus all the more fortunate that Mr. Newton was able to get the Plan shown on Plate VI.

The building, like the one last described, is entirely in rectangular construction, running in its greatest length north-south. One notices at once the general family likeness to the other edifices already described. The tendency to a triple division is, however, more articulate here. This is emphasized by the two thoroughgoing walls, running east-west, one towards the south and one towards the north. The area enclosed at the north end has thus a clear affinity with the similar outhouse arrangement adjoining the entrance of the monument last described.

The remains of an external wall of circumvallation on the west side is to be connected with the way of access to the building. This was apparently through a gateway at the south end of this wall, where a low line of foundation runs west, just visible above ground, and which most likely formed a sort of threshold at the entrance. The gateway was flanked within on the exposed right-hand side by a sort of guard-room bastion, while any hostile persons attempting to enter the building would be hemmed in by the line of circumvallation wall on the left-hand side.

On passing this, one comes, after a few paces, to a very massive rectangular tower of defence, once more on the exposed right-hand side.

This projects northwards as a solid bastion, which makes the right-hand exposure of any enemy attempting to enter still more perilous, as in turning east he is compelled to run the gauntlet of the exposed right-hand side all the time. The position of this bastion, its massive work and its separate entity as construction are analogous to those of the great circular tower guarding the entrance to the building, previously described, on the north confines of Rujm-el-Melfûf.

It seems to be apparent on entering that the central part of the building is a sort of court with outhouses. This court is flanked on the north side by a long rectangular walled area, which may have been a stable or cowhouse. As suggested already, it is very like a similar arrangement, characteristic of the megalithic building across the valley north of Rujm-el-Melfûf. There also, as seen on Plate V, it flanks one side of what looks like a great central court.

Another very decided division in the edifice is marked by the thorough-going wall flanking this court on the south side. Within this wall, at the south end, seems to have been the residential part of the building, and this, in its emphatic separation from the more public parts of the fortress, is provided with a separate external entrance in the east façade of the building. This is marked by a doorway, having massive stone door jambs with characteristic projecting reveals. Pressure on the lintel of this doorway was relieved by means of a triangular opening, in splayed masonry at the sides, into which was fitted a great triangular block, now lying within the doorway, similar to the much smaller one already noticed as lying outside the supposed doorway of the round tower of Rujm-el-Melfûf.

The internal arrangements of this part of the building are once more threefold. First, within the entrance, comes a sort of lobby. This has a small room on the right-hand side, which may have been a porter's lodge. Two small rooms on the left-hand side look as if meant for retainers. This system is flanked on the west side by a shallow area, running north-south, which may have been a sort of yard open to the sky.

All this is divided off on the west side by a wall running north-south, and having a gap which may conceal a door or gateway. Stretching west beyond this cross wall is what looks once more like an open court, arranged in a massive right angle, with a long shaft running west on the north side, and a short one running south.

In the angle remaining on the south side, next the south-west corner of

the building, is the third member of this system. It consists of three rooms, which may have formed the private part of the house. The first and largest room on the east side runs, with its greatest length, east-west. It looks like a public room, and it seems to have been flanked by a corridor on the north side. The two small rooms running side by side behind at the west end have the appearance of sleeping rooms. It will be noticed that the largest room has got its external wall on the south side recessed, while the small room in the south-west corner has its south wall correspondingly projecting. The returns in the external wall thus formed are characteristic of megalithic masonry, but they were the only ones we observed in the present building.

Taking now the building in its general characteristics, we find that the piecemeal method of construction, beginning with the massive bastion within the entrance, is general. The fortress character of the whole again is strongly emphasized. This comes out particularly in the precautions taken to guard the public entrance.

The separate, seemingly unprotected, though massive, external entrance to the private part of the building looks like the innovation of a time of great security, when the domestic arrangements of megalithic Ammon came to be copied in these extra-mural forts.

It will now be well to sum up our conclusions about these monuments taken as a whole.

As we have seen, the first link in the chain of evidence leading us to connect all these buildings together was the dolmenic tomb of Rujm-el-Melfûf. The juxtaposition of this tomb and the building alongside of it connected them together in a way which it would be difficult to gainsay. The megalithic method of construction was in both cases the same, and as if to clinch the connection, on the other side of the residential building was a second dolmenic tomb with cella in splayed masonry and an orthostatic enclosure, alongside which clearly had the same relation to the edifice between both as the greater family tomb.

It need hardly now be pointed out that without the happy chance which led us to notice these tombs right at the beginning of our investigation of these monuments, it would have been much more difficult to establish their megalithic character and their relation to each other.

A further important datum was afforded by the round tower of Rujm-el-Melfûf. Such circular buildings of primitive appearance at once suggest

megalithic connections, and the external batter, with splaying of the masonry within, revealed once more a constructive principle of widespread occurrence in the megalithic world.

But this was not all, for to our own surprise we found this circular construction to occur once more at Rujm-el-Melfūf on a greatly magnified scale, combined this time with rectangular construction, which itself repeated over again some of the outstanding peculiarities of technique of the residential building associated with dolmenic tombs at the west end of the site.

The splayed masonry occurs in the dolmenic tombs, in the tower of Rujm-el-Melfūf, and now once more in the great circular chamber of this building.

Without such characteristic marks to go upon, so far it might not at all have been possible to arrive at any conclusion regarding the real connections of buildings entirely in rectangular construction like that across the valley on the north side, shown on Plate V. The rectangular construction, it is true, is of uniform character wherever we have examined it at Rujm-el-Melfūf. But this common characteristic would not in itself have enabled us to establish the megalithic connections of these buildings without going further afield and exploring beneath the surface.

The building in rectangular construction at Humrawiyeh would likewise have run some risk of isolation were it not for the triangular lintel block which repeated the type of that we had previously seen at the megalithic tower of Rujm-el-Melfūf.

Finally, the wall of circumvallation is seen in a megalithic connection in its intimate relation to the dolmenic tomb and residence at the west end of the site. This feature is repeated in connection with circular megalithic construction at the fort with great round tower further east and once more at Humrawiyeh. The avenue of approach, which is in systematic connection with this wall of circumvallation in such a way as to expose the right-hand side to attack from outstanding bastions, is present in the case of all three buildings, and is a further guarantee of an affinity between them which has wider connections in the megalithic world.

When now once more we see that all these buildings are interconnected in a strategic system that has relation to the peculiar lie of plateau and valley at Ammān, their chronological relation to each other seems finally placed beyond all doubt. The association of all of them, direct or indirect, with the dolmenic tomb of advanced type at Rujm-el-Melfūf, would thus permit us to

assign the whole series of monuments to the final and culminating period of the megalithic civilization at Rabbath Ammon.

This great civilization appears now in phases of development in which earlier and later can be distinguished.

1. We have already, at the beginning, suggested that the existence of tombs of simple dolmen type at Ammān, recorded by Conder and Mantell, should be kept in view. These dolmens may now be taken as representing the first and earliest phase of megalithic civilization at Rabbath Ammon.

This earliest period is but scantily represented at Ammān by remains now in existence, but the near vicinity of what in ancient times was always a great city with building operations constantly going on is partly at least responsible for this. At Mareighat, however, which is situated in valley country some considerable distance south-west of Madeba, and is far removed from any centre of habitation of the present day, we have a settlement and necropolis of dolmen tombs so extensive that it ought to be regarded as typical of this earliest period east of the Jordan. Conder and Mantell have estimated the dolmens at Mareighat as being over one hundred and fifty.* Below, on a terrace above the adjoining valley, on the south side, is the corresponding settlement, while on the saddle to east of the dolmen cemetery, which forms the approach to the valley from the north, is the extraordinary grooved menhir or sacred pillar, which gives Gebel-el-Mansūb its name.† This characteristic example, with its emphatic ritual significance, makes this type of monument emerge in Palestine for the first time with the dawn of the Megalithic Civilization long before the days of Canaan. Further afield it is associated with the entourage of dolmen tombs all over the megalithic world. In Sardinia we have, in a group with others, the famous menhir with female breasts in an environment of dolmens at Tamuli, near Macomer.‡ Corsica, an island of dolmens and menhirs, has a remarkable *alignement* of such sacred pillars near the dolmen of Fontanaccia.§ France, again, has eternalized the menhir in an environment of dolmenic tombs at Carnac. In Britain the great dolmenic mausoleum of Stonehenge has a monumental arrangement of these pillars, in a circle of grandiose proportions, which suggests a more intimate

* *Survey of Eastern Palestine*, p. 187.

† *Ibid.*, p. 186, fig. in text.

‡ *Monumenti Antichi Lincei*, XI, p. 262, fig. 139; p. 263, fig. 140.

§ Mortillet, *Nouvelles Archives des Missions Scientifiques*, III, pp. 51-2, 53, also 54-6, 62, 63, Plate XI, fig. 1.

ritual relation to the cult of the dead. And this arrangement is repeated in the so-called druidical circles as far north as the Highlands of Scotland, notably in the counties of Aberdeen and Inverness. *Alignements* of such as in Corsica and at Carnac occur in regions of Scotland as remote as the distant island of Lewis.

It would thus appear as if the *alignements* of sacred pillars, which in Canaanite times formed high places of Holy Writ, like that at Gezer, were a heritage from a much earlier era. And if it is not possible to forget the primitive dolmenic associations of the great pyramid tombs themselves in contemplation of their monumental grandeur, neither should we leave out of account the early connections of the Egyptian obelisk with the adoration of the sun and the cult of the dead when we marvel at its later monumental disguise of polished granite and sacred hieroglyphs.*

2. The second period in the megalithic civilization is not represented at Ammân by monuments discernible above ground. But later investigations may tend to show that it has ample illustration at other sites. Its characteristic mark is the elongated type of dolmenic tomb with orthostatic slabs forming the cella, like that at Kosseir shown above in fig. 5.†

We have seen how the more advanced dolmenic tomb of Rujm-el-Melfûf, with its cellas in splayed masonry, gave us the key to the understanding of a whole series of residential buildings illustrative of a still later phase in the development of the Megalithic Civilization. The moral is that later research should keep a close watch for any residential edifices or settlements that may happen to be in relation to the type of elongated dolmen with orthostatic slabs of the second period represented at Kosseir. This should turn out to be all the more easy for future travellers in Palestine, as there can be no excuse for taking an elongated dolmen of this kind for an altar. The risk of that wrong sort of isolation of the phenomena which leads to error may thus be happily evaded, and there is a corresponding greater chance that investigators may be induced to consider the phenomena in those real connections which are consistent with the truth.

* The central object of veneration in the great vanished temple of the sun at Heliopolis was an obelisk, and this feature was repeated in the Vth Dynasty temple at Abu Gurab. See Erman, *Aegyptische Religion*, p. 45, fig. 45. Steindorff, *The Religion of the Ancient Egyptians*, p. 41.

† The dolmenic tomb with orthostatic slabs and developed portal hole at Tell Mataba may be chronologically later, but it belongs typologically here. See Vincent, *Canaan*, p. 420, figs. 292, 293.

3. The third or culminating period in the Megalithic Civilization is represented at Ammān by the whole series of monuments we have been describing. Its most characteristic marks are the dolmenic tomb and round towers with splayed masonry of Rujm-el-Melfūf. The wide range of distribution of the dolmenic tomb with elongated cella in splayed masonry has been already remarked upon.* But equally wide, perhaps, is the range of the rectangular tomb with circular cella in splayed masonry.† And here it is interesting to note that one at least of the rectangular megalithic tombs of Kabūr ben' Israīm, near Jerusalem, has got such a circular cella. These tombs, we have already suggested, belonged to the same advanced period in the Megalithic Civilization as the dolmenic mausoleum and round towers of Rujm-el-Melfūf.

It will, however, have been noticed, as regards the structural relation of the rectangular to the circular construction in the case of the great fortified residential building with round tower at Rujm-el-Melfūf, that this is of the nature of a compromise and not of organic unity. At first sight, indeed, it might seem that the circle was here on the point of being ousted altogether. This may have happened at Rabbath Ammon, but that circular construction, as a tradition from an earlier time, did not entirely vanish in the later history of architecture in Palestine is shown to us by the example of the circular towers which Dr. Reisner is now beginning to discover at Samaria.

But the round towers of Samaria did not stand alone as illustrative of a later era, for in a wider Semitic connection we have the battlemented round towers on a relief, representing a besieged fortress, in the North-West Palace of Nimrud, which was built in the reign of Assurnasirpal (884–860 B.C.).‡ Battlemented circular towers appear once more on a relief from the Palace of Kuyunjik, which was built in the time of Sanherib (705–681 B.C.).§

Nearer home, again in a Syrian environment, we have the combination of beehive chambers and crenellated round towers of a besieged fortress,

* For the wide distribution of the dolmen type of tomb, whether simple or elongated, see Borlase, *The Dolmens of Ireland*, *passim*.

† This itself stands in a derivative relation to a type of dolmen having a circular cella in orthostatic slabs. See Préchac, *Mélanges d'Archéologie et d'Histoire*, XXVIII, pp. 165–6. *Papers of the British School at Rome*, V, *loc. cit.*, p. 134, fig. 17, p. 136.

‡ See *Jahreshefte*, XII, 1909, p. 11, fig. 1, after Layard, *The Monuments of Nineveh*, Plate 17.

§ *Ibid.*, p. 13, fig. 2, after Layard, *op. cit.*, Plate 68.

represented on the Phoenician silver bowl from Amathus in Cyprus, shown in fig. 11, which belongs at latest to the sixth century B.C.*

By all this it is not meant that these later beehive chambers and round towers necessarily stand in a derivative relation to the circular constructions of the megalithic world. For the time being it is not possible to say more than that megalithic round towers like those of Ammon were already on the spot long before Sidon and Tyre and Samaria emerge on the stage of history.



FIG. 11.—BESIEGED FORTRESS WITH ROUND TOWERS ON PHOENICIAN SILVER BOWL OF AMATHUS.

The siege of fortresses on the reliefs referred to recalls a siege of Rabbath Ammon itself recorded in sacred story. And it is when Joab reports to David: "I have fought against Rabbah and have taken the city of waters."[†] Can we then assume that the megalithic forts of Rabbath Ammon were still in occupation and in use for strategic purposes in the days of Canaan, and that they were a factor to be reckoned with in David's campaign against Ammon? If they were we should have a curious parallel to the Viking occupation of the brochs of Scotland for strategic purposes at a period long ulterior to their original construction, which may have been in megalithic times.[‡]

Whoever visits the ruined fort at Humrawiyeh from Rujm-el-Melfūf will do well to wend his way to Ammān down the valley of that name. Going

* *Ibid.*, p. 26, fig. 16. Reproduced by courteous permission of Professor Helbig.

[†] 11 Samuel xii, 27.

[‡] Montelius, *op. cit.*, pp. 183-5.

eastward along the valley bed he will soon perceive the gleam of waters in the distance. This is all the more of an agreeable surprise, because at Rujm-el-Melfūf itself the wady is dry. But here even in October the water is plentiful, and one can see how these same waters were once so famous as to give the city of Rabbah a second name. Now, alas, the royal city has fallen upon evil days, and the sullen Cirkess population of to-day has as poor a veneration for these waters as it has for the ruins of Ammon itself.

On going down the valley towards Ammān on a quiet evening, with deep shadows among the poplars, it is the superlative importance of this same stream in the history of the ancient city of waters that we had mostly in our minds.

Anon, where shady poplars cease and the village has well begun, we come upon the ruins of the Roman city on either side of the river. But where once were monumental bridges and imperial aqueducts there was only now pollution of that sparkling stream such as never was heard of in happier and better days.

Then we emerge from behind those scenes on to the stage of the Roman theatre just as twilight deepens into night. And did we have the necromancer's wand of fairy tale that bringeth light and openeth up the hidden secrets of the earth, that would be the place to tell the story, full and whole, of the City of Waters.

It was the light of every day and of a brilliant morning when we left Rabbath Ammon behind by the road to Madeba. Then, just as we were coming out upon the upland, we saw one more of those megalithic forts we have been describing on an area of vantage to the left, guarding the caravan route from the valley. After that they vanish totally, and on the nomad table-land we see them not again until Heshbon, with its pools, is reached, and we are once more in valley country and in a land of springs, such as we see everywhere about the Mount of Nebo and the gorges of Mareighat.*

The contrast is thus impressive. And it is between the level table-land, that has ever been pastoral of the Bedawi, and broken valley country that since the earliest days of Mareighat and Rabbath Ammon has never been truly nomad for the megalithic people.

ATHENS,

November, 1911.

* On this matter of megalithic environment, compare Vincent, *op. cit.*, pp. 414-5.

PALESTINE EXPLORATION FUND.

THE EXCAVATIONS AT AIN SHEMS, 1911.

BY DR. DUNCAN MACKENZIE.

THE excavations at the ancient site of Ain Shems were started on April 6, and were concluded for the season on August 12.

The new Imperial Commissioner, Ibrahim Khalil Effendi, spared no trouble which might facilitate our work, whether by his kind mediation in smoothing away all difficulties with the local people as they occurred, or by his active co-operation in the way of superintendence from day to day. In Surraya Effendi, former Commissioner of Excavations at Gezer and now Mudir of Mejdel, we had an old friend of the Fund who stood us in good stead, with courteous assistance in case of need. Mr. Serapion Murad and his brother, the late Mr. Georges Murad, always gave their ready help about matters of a delicate nature with advice to which their knowledge of affairs and of the country gave exceptional value. All these good offices received effective encouragement through the friendly and disinterested solicitude for our success of the archaeological authorities at Stambul, and especially of his Excellency Halil Bey, Director of the Imperial Museums. The Governor of Jerusalem, the Director of Education, the Kaïmakams of Hebron and Jaffa, and the Mudir of Ramleh gave official help in an amicable spirit, which was of paramount importance in dealing with the local proprietors at Ain Shems. To all of these, and first and foremost to his Excellency Halil Bey, the Palestine Exploration Fund and the excavators owe very sincere thanks.

As architect to the excavations the Fund was fortunate in having the co-operation of Mr. F. S. Newton, whose plans and drawings of the site and of the work in progress there will be occasion to consult in what follows.

The foreman of works was Yusuf Kanaan, who has acted in the same capacity with Professor Macalister at Gezer, and has also done similar work at the German excavations at Baalbek.

Taking account of the fluctuations of local labour, the staff of excavators employed works out at an average of 78 men, women, and boys for the whole season.

THE SITE.

Our camping ground was chosen on a roomy terrace, with olive trees below the site on the north side, with a wide outlook westward down the valley of Sorek, fig. 1. To eastward, again, up the valley, is the inspiring prospect of the mountains towards Judah. This view to eastward, including the camp, is shown in fig. 2. In front of the terrace, on the west side, are traces of an ancient roadway, which ascends gently from the valley and after skirting our camping ground, where it is partially cut out of the rock, it



FIG. 1.—THE VALLEY OF SOREK, LOOKING WEST.

passes up in a south-east direction over the shoulder of the hill on which stands Ain Shems, so as thus to reach the Wady Bulus beyond on the south side. The line taken by this roadway, as it leaves the valley for the site, is shown in the foreground of fig. 2. Just on the shoulder this roadway becomes one with an important camel track, which, after descending the upper reaches of the Valley of Sorek, ascends gradually towards the saddle of Ain Shems with the same intention as the other, to make a short cut for the

Wady of Bulus. This lateral valley itself has many windings northwards before it joins its waters at length to those of Sorek, just to west of the site. The long descending spur of limestone rock on which stands Ain Shems projects westward like a natural barrier into the outlet of this lateral glen as if on purpose to cut off the flow of its waters into the larger valley. This disposition of the *terrain* in relation to ways of access to and from the south seems to afford a natural basis for the strategic importance of Ain Shems. And this strategic importance in relation to the south seems to be emphasized by



FIG. 2.—THE VALLEY OF SOREK, LOOKING EAST.

the presence of a second fortified site on the west slope of the valley, where now stands the semi-deserted village of Khurbet Mjina. As if further to add significance to this orientation, towards the south the junction of camel tracks on the shoulder of Ain Shems goes up Wady Bulus in a single route, which suggests connections of traffic in ancient days, with the plains of Philistia further south as far as Gath and Lachish and Gaza itself. It is its position, then, in relation to the exit of Wady Bulus into the Valley of Sorek that gives its individuality to the site of Ain Shems. The Valley of Sorek itself,

in its wider outlook westward, takes account of Beth-Shemesh only in that more general way in which it also takes account of Timnath and Ekron and Gezer before its waters lose their purpose in the sea.

The Valley of Sorek, opposite Ain Shems looking north, is bounded by a barrier of undulating hills, the contour of which, from east to west, presents a series of gently rounded limestone knolls somewhat ascending and enlarging in the middle region and sinking east before they reach the higher hills of Judah as well as westward towards the valley plain. It is the part of this view towards the hills of Judah that is shown in fig. 3. Beyond this barrier there is no outlook northwards like those to east and south and west about Ain Shems, but, as if to make up entirely for such a lack of vista, on the furthest knoll to east there stands out airily the site of Zorah, reported birthplace of Samson himself, crowned by the wely dome and sacred palm of Sheikh-es-Samet.*

In the westward direction, once again, there lies, concealed behind the westmost knoll of this barrier of hills, the village of Rafāt, in a position analogous to that of the modern representative of Zorah at the east end. The ancient roadway referred to previously as passing south-east to west of our camping ground in its ascent to the shoulder of Ain Shems descends in the opposite or north-west direction towards the bottom of the valley, where it crosses the river by what once a day must have been an important ford. Here, on the left-hand side, is the well of Bir Temed, which draws its waters right from the river-bed. After passing the well the roadway winds up to north-west until it vanishes behind the undulating ridge to west of the westmost knoll, where lies Rafāt. This continuation of the roadway in the north-west direction appears in the left background of fig. 4. Thence it takes its way in the direction of Gezer and the plains of the north. This short cut over the ridge is still taken by travellers to the north, whereas wanderers east and west in search of Beth-Shemesh or Ekron would go up and down the valley. It is up this valley the Ark is to be conceived as taking its wondrous journey from Ekron to Beth-Shemesh,† and descending from the knoll of Zorah it is down this same Vale of Sorek that Samson went to Timnath to seek a wife and an occasion against the Philistines.‡ But

* For the curious traditional connection of this wely with the personality of Samson, see Père Vincent in *Q.S.*, July, 1911, p. 147.

† 1 Samuel vi, 12-13.

‡ Judges xiv, 1-4.



FIG. 3.—THE VALLEY OF SOREK, LOOKING NORTH-EAST.

when Samson went to Gaza, if it was from his native home at Zorah, he would have passed Beth-Shemesh at the shoulder of Ain Shems and taken the straightest way to Philistia up the Wady Bulus, as is still done to-day.

From the topographical point of view in relation to our site, the interest of these routes of traffic concentrates where they converge on the saddle of Ain Shems (fig. 5). This is just alongside of the wely of Abu Meizar and to right of that as one looks south. At this point, what strikes the eye most forcibly is the contrast between the mass of ruins above ground on the



FIG. 4.—THE VALLEY OF SOREK, LOOKING NORTH FROM NORTH-WEST NECROPOLIS.

left or east hand side beyond the wely and the rounded contours of the mound on the right or west hand side. The ruins beyond the wely ascend to eastward along the higher parts of the spur of Ain Shems, and among them in the distance stands out prominently a second wely, now much ruined, that of Abu Ghazaleh (fig. 5). All this higher eastern region of ruins is Ain Shems proper, while the mound to westward, which crowns the natural limestone terrace, formed by the termination of the spur in this direction, is now called Rumeileh. This mound of Rumeileh appears in lengthened profile



FIG. 5.—AIN SHEMS, LOOKING EAST, AND SHOWING ROADWAY.



FIG. 6.—RUMEILEH—BETH-SHEMESH, LOOKING NORTH.

as seen from north or south, and especially as viewed from Beit Gemal and other heights above the valleys to the south, its commanding length appears an imposing barrier, as it sweeps to westward into the exit of Wady Bulus towards the Vale of Sorek (fig. 6).^{*} The profile view is emphasized more and more as one approaches, and it is only by walking right across the site that one gains any true idea of its breadth in the same direction. If one is not on the spot the true proportions of the mound are best realized by reference to the general plan of the site shown on Plate VII.[†]

Keeping now in mind the contrast between the two parts of the site referred to above and the junction of roadways on the shoulder of the hill which separates the one from the other, the question is: Does the roadway mark an historical boundary between the two? Did the ancient city originally cover both parts of the site or only that to the west called Rumeileh? To settle this question right at the beginning, it seemed as if our investigations would have to start with an examination of the area next the wely where passes the roadway.

This interesting wely, with its traditional associations with the grand personality of Samson, had drawn our attention to the spot in advance, through its having become our own archaeological *pied-à-terre* at Ain Shems (fig. 7). It is this house of Samson that now affords a safe shelter for the finds from Beth-Shemesh. All our work off the site is done either inside the wely itself or within the seclusion of its court. The reason why all this, to our own surprise, was made so easy may be familiar to readers of the *Quarterly Statement*, from the lively account of how it all happened, given by Père Vincent.[‡]

At first it might seem natural that a spot having such associations should itself lie within the limits of the ancient city and not without.

There is, however, an equally interesting possibility, suggested by Mr. F. G. Newton, as a result of his own topographical observations on the *terrain*. The wely itself stands on a terrace of rock that ledges westward towards the present roadway, and then dips down out of sight, in a way to suggest an artificial accumulation of débris on that side concealing the original

* After *Q.S.*, April, 1911, fig. 3.

† See also *Q.S.*, July, 1911, p. 142.

‡ *Q.S.*, July, 1911, pp. 145-7.

saddle of the hill, as it was when it first began to be used as a short cut into Wady Bulus.*

There is, further, no doubt, topographically speaking, that to arrive at Beth-Shemesh must have meant arriving at this spot. It is here that, to the present day, a natural halt is made by the passer-by, and it is quite possible that this custom is of immemorial origin. The passer-by halts, as often as not, because his camel halts, and the Asiatic wisdom of all oriental beasts of burden always finds an obstinate excuse for doing so, wherever there is



FIG. 7.—THE WELY OF ABU MEIZAR.

a sacred shrine, or wely, or caravanserai. If, then, the rock terrace on which the wely stands was just outside, and yet at Beth-Shemesh, we can imagine no more likely halting-place for the Ark on its arrival from Ekron than the sacred rock on which now stands the wely of Abu Meizar. The chronicler relates that "The cart came into the field of Joshua, a Beth-shemite, and

* The ledging rock in question is seen in fig. 5 projecting from underneath the west wall of the wely court towards the roadway.

stood there where there was a great stone.”* The story thus presupposes an area just outside the city, and at the same time by the roadside. And it may well be more than a coincidence that, as one approaches the saddle of Ain Shems from the Valley of Sorek, one has only to step a little aside to left of the roadway in front of the wely to be in such a field, and by such a great stone as the chronicler may have had in mind.

PRELIMINARY INVESTIGATIONS.

Many considerations seemed to favour our beginning investigations in this interesting region. The passage of the roadway in particular over the shoulder of the hill made it a practical question of excavation to find out whether actually in ancient days it passed outside the city or not, or whether the confines of the town in this direction did not originally extend eastward beyond the wely, so as to include part or the whole of Ain Shems within the walls. The delimitation of the ancient city confines was further of importance, so as to ascertain at the start what areas were free as dumping ground. When dealing with a walled city this object is most conveniently attained by tracing out the line of the Strong Wall itself. But even after the boundaries set by fortification walls have been ascertained, it does not at once follow that the areas immediately outside can without further ado be freely used as dumping grounds. Ancient cities very usually have the abodes of the dead, or the necropolis, commencing at once outside the city walls. Or there may be ancient habitations, like those of the cave-dwellers of the Stone Age belonging to a time anterior to the confines set by later city walls.

In the case of Rumeileh, the limits of the city, as conditioned by the natural conformation of the limestone hill on which it stood, could be easily guessed by surface observation on the south, west, and north sides. The limestone bluffs which fringe the hill on all three sides form a visible boundary, beyond which it is not easily conceivable that the city could have extended. The natural grottos underlying these could readily, it is true, afford a habitation for the living as for the dead, but we cannot imagine either, as encroaching much upon the rich alluvial fields beyond.

Towards the east, however, where the camel-track takes a short cut over

* 1 Samuel vi, 41.

the shoulder of the hill in order to pass south into Wady Bulus, these confines are by no means so clear, unless, indeed, we take the roadway itself as a landmark.

The question for preliminary investigation then was: Did the modern camel-track across the saddle pass through the middle of the ancient city or did it skirt that on the east side?

With a view to determine this we first attacked the low-lying region to right of the camel-track, from which one ascends to the western mound of Rumeileh.

As we were at the same time in search of free dumping ground, we sought to attain our object by sinking a number of trial pits at convenient intervals all over the area. These were two metres by two, and went down to the virgin rock. Such soundings, it is true, are apt to mislead if the deposit contained in them is not examined at the time to see what sort of stratification, if any, it presents. Such pits, as often as not, miss wall remains altogether, especially if such are of sun-dried brick and mud construction. Thus, the one certain test to be applied is the presence or absence of such distinct stratification as is afforded by floor-levels, accompanied by chronological sequence in the pottery, and other finds that may happen to occur in the pit.

In our trial pits wall remains were uniformly conspicuous by their absence. The only exception to this uniform phenomenon was at the surface levels of late date, in the case of one or two of the pits at the north end of the area examined. The underlying deposits showed no stratification, such as would have been indicative of floor-levels. The pottery, again, was marked by no such sequence as would have suggested habitation, but only by that appearance of gradual accumulation characteristic of rubbish heaps that have been long in use. On these the latest refuse thrown on the heap may roll down to the bottom, and thus appear at one level with the earliest round the edges. The alternation of layers of close packed pottery with masses of rubble stones presented an appearance of stratification, with downward curve that is equally characteristic of such rubbish heaps when on a slope. The stratification in such heaps presents a general sequence in time that is usually better marked in the interior and is more vague about the edges. But it is a sequence that is more apt to be characteristic of extra-mural areas than of regions within the walls of cities, and it never shows a floor-level.

All the trial pits, without exception presented the phenomena referred to

above, with a uniformity which indicated with great probability that we were in an extra-mural area, and that the limits eastward of the ancient city lay somewhere to west of the region we had examined. This in turn would mean that the camel-track across the ridge from the Vale of Sorek to Wady Bulus skirted the city on the east side, and that it was the modern representative of an ancient route of traffic past Beth-Shemesh. We were thus further led to the conclusion that the ancient city lay entirely on the western mound of Rumeileh, and that no part of it extended eastward to the area of superficial ruins about the welys, now called Ain Shems. What we have here is a process by which, in course of time, habitation in later eras at Ain Shems withdrew itself gradually eastward in such a way that before the site was entirely deserted, not long ago, no part of the modern village of Ain Shems coincided with ancient Beth-Shemesh. The camel-track that passes by the lower wely marks the boundary between the two.

The results that came out in the trial pits, referred to above, having thus secured us a convenient free dumping ground, we proceeded to the investigation of the area adjoining this on the west side. This region forms the slope up west of the east end of the mound of Rumeileh.

On the assumption, which seemed to be justified by the results brought out in the trial pits, that at the bottom of this slope we were still outside the confines of the city in this direction, it seemed likely that we should come upon remains of the east city wall by working up the slope and westward. As, further, the whole area that might turn out to be outside the Strong Wall would, if possible, have to be made available as dumping ground for future operations within the city at this end, it was decided to clear the whole area on the slope as much as possible layer by layer.

The south half of the slope was first attacked, the whole being laid out in a system of elongated, rectangular plots of equal size, running west-east down the slope. The earth removed from this area was dumped on the low ground at the foot of the slope, and between that and the camel-track across the saddle, which we had previously examined by means of the trial pits referred to already.

The western boundary of this area was formed by an emphatic line of wall rising to the surface and running in a straight line south-north with a turn west at the north end. It was indeed only the appearance of cement in the construction that would have prevented anyone at first sight from identifying this massive system with the Strong Wall at the east end of the town-

we were in search of. In the form in which it appeared to us it was really the east external wall of what was guessed, and in the sequel turned out to be a large Byzantine convent. Other extensive remains of the building systematically connected with this wall were discernible at the surface over a large rectangular area extending westward in such a way as to occupy the entire south-east region of the site. This is the region which will henceforth be referred to as the Byzantine Area.



FIG. 8.—PRELIMINARY EXCAVATIONS, LOOKING SOUTH.

The eminent position occupied by this building, on what seemed to be the most important region of the site, made it appear advisable to deal with the difficulties raised by its presence right at the beginning of the campaign. Otherwise an area less encumbered by later remains might have led to more immediate results. It has, however, to be remembered that at Ain Shems the bulk of our workmen were from the village of Deir-Aban, and, as such, new to excavation. The sprinkling of men from Abu Shushe, trained under Macalister at Gezer, and from Zakariyeh, who had had experience at other tells excavated by Bliss and Macalister, could only be expected slowly to

leaven the whole mass of our workmen. All this formed an additional reason for starting excavation with the later deposits at the east end of the site rather than with the important early strata and fragile constructions in sun-dried bricks in the free Semitic regions which we guessed to exist to west of the Byzantine Area.

The exploration of the region east of this Byzantine Area was, then, but a preparation for the clearing away of the later deposits in this area itself.



FIG. 9.—PRELIMINARY EXCAVATIONS, LOOKING SOUTH-WEST.

This preliminary investigation is shown at its start in the picture of fig. 8 looking south. The line of large megalithic looking blocks in the foreground might well be taken for strong wall. It ultimately turned out, however, that this impression was misleading, and that they were really blocks from the fortifications put to later uses as boundary walls by Arabic squatters on the site. The pole visible above, near the right end of the picture, marks the north-east angle of the Byzantine Area.

Fig. 9 shows the excavation looking west as it appears from the top of wely Abu Meizar. In the foreground is a glimpse of the camel-track

going south across the shoulder of the hill to Wady Bulus. Beyond the roadway are two of the shoots from the preliminary trial-pits referred to above. Fig. 10 gives the same view with the excavation completed.

The outcome of this investigation was to bring out next the surface a number of rude house-walls, built up against the external face of the east wall of the Byzantine Convent. Everything went to indicate that these walls were the poor remains of the habitations of Arabic squatters, belonging to



FIG. 10.—PRELIMINARY EXCAVATIONS, LOOKING SOUTH-WEST.

a time when the Byzantine Convent was already in disuse. The relation of these walls to the Byzantine constructions alongside of them will best appear from the Plan of Plate VIII and Sections of Plate IX.

Beneath these walls there were no earlier constructions at all, and this negative evidence in itself afforded an indication that we were still outside the real confines of the city, as that existed in Semitic times. Instead of such walls, what struck us was a certain slope down east in the stratification of the deposits, which at once indicated that we were in an area of thrown-out

rubbish that had gradually accumulated in course of time. This stratified rubbish heap, lying as it did underneath the later Arabic walls, clearly belonged to an earlier time, and it could thus be connected with successive phases in the history of the Semitic city. It was, in short, the more massive central parts of that same rubbish heap the outer edges of which we had already struck in the trial pits. This stratified rubbish heap, in its



FIG. 11.—EAST RUBBISH HEAP, SHOWING STRATIFICATION.

relation to the Byzantine walls alongside of it and the later constructions above it, is shown on Section AA of Plate IX. Fig. 11 shows the stratification as it appeared on excavation looking west. Referring to the section, and comparing with fig. 11, the stratification appears quite clearly and distinctly. First next the surface come the Arabic squatters' walls, built up against and alongside of the massive east wall of the Byzantine Area.

These walls step down east, but their courses are horizontally placed in contrast with the slope down of the rubbish strata beneath. The pottery coincident with these walls is dominantly Arabic, painted and unpainted. The painted pottery has elaborate geometric designs reminiscent of woven patterns, which come as a surprise in so late a context. Some of the varieties show characteristic shapes such as survive with tenacious persistence among the fellahin of Palestine to the present day. A much smaller proportion of sherds shows horizontally ribbed exteriors in imitation of rapid wheel-turning, which can be referred with some probability to the period when the convent was in use. Among the Arabic and Byzantine sherds, again, emerges a small percentage of Semitic fragments which have evidently strayed from their proper context, and have to be referred in a general way to the earlier pre-Byzantine history of the site.

This stratum was found to have underlying it a thin black layer of charred wood, which was very distinct in the region next the Byzantine Area, and more indefinite on the east confines of the rubbish heap. The black band referred to comes out quite clearly in fig. 11.

The dark layer concealed beneath it a stratum which contained amid its accumulated *débris* pottery that was still Byzantine, giving place to Semitic sherds of the last period of the ancient city.

Then, with a very distinct change from ashy grey to terra-cotta red, appeared in section a thick burnt stratum, in which the *débris* of sun-dried bricks showing chopped straw was prominent. What was interesting about this stratum was the fact that the *débris* was not the natural colour of such sun-dried bricks, as they would have appeared in the construction of the houses to which they belonged, but a bright terra-cotta red, betraying the influence of fire.

As we had clearly to do with a heap of rubbish thrown out from within the walls, the inference was not far to seek, that the firing of the bricks was the result of a conflagration on a large scale. This conflagration must have taken place while the bricks were in position in the walls to which they belonged. This inference is further borne out by the fact that some of the brick *débris* was burnt black, as would have happened to bricks next to wooden beams in the construction.

This Red Burnt Stratum did not contain the mass of pottery characteristic of those levels of the rubbish heap, which represented the gradual accumulations of a more normal period. But such pottery as there was could be taken

to belong, for the greater part, to the same context as that which must have been in use just before the rubbish was thrown out. It was of the same strongly marked Semitic character as that which a little later turned up in similar circumstances in the area of the South Gate, while the same types emerged once more in the tombs of the North-West Necropolis.

It seems clear, from the indications to hand, that the interesting Red Burnt Stratum referred to represents a stirring episode in the history of the city. Such conflagrations on a large scale, as are indicated by this *débris* of burnt, sun-dried bricks, are more usual in times of war than in peace, and it is tempting to see in our burning city the tragic sequel to a successful siege. The throwing out of the *débris* on the rubbish heap would in that case indicate later repairs and operations of rebuilding within the city on a large scale, after the establishment of peace. The question is: Who were the besiegers? The answer may come out as the result of later investigations within the walls, and we have for the time being to remember that we still remain outside.

Underneath the Red Burnt Stratum was an underlying one of more gradual accumulation (see Section AA). This contained masses of stratified pottery, and it was noticeable from an examination of this that types scantily represented in the Red Burnt Stratum turned up here in great quantities. The meaning of this phenomenon is that the underlying stratum we are dealing with represents a period probably of peaceful development in the history of the city, anterior to the siege indicated by the thrown-out *débris* of the Red Burnt Stratum. During this period the pottery contained in this stratum was apparently thrown out gradually from time to time, and it may represent that in use in the Burnt City before the siege.

Still earlier accumulations next the rock may turn out to belong to an era before the Burnt City itself was built. It was interesting to note that on the east borders of this rubbish heap next the rock, and at a depth of some twelve feet from the surface, there occurred an imported sherd of hand-made porous grey ware, with purple black semilustrous glaze, on which was painted geometric pattern in dull matt white. The ware showed affinities with *Ægean* technique, which in Crete go back to the First Middle Minoan Period, and the era about 2000 B.C. The sherd is Cypriote, but the glaze technique seems to have undoubted *Ægean* connections, and its common use in Cyprus may have extended from about the beginning of the Second Millennium to the period about 1450-1400, when this style seems to have reached its culmination.

The results of this extra-mural exploration are shown in fig. 12. In the background is the emphatic line running north-south of the east wall of the Byzantine Convent. The late walls of the Arabic squatters, built up against the main wall, are of an entirely superficial character, and they are built with little care for the laying of solid foundations on the top of the earlier rubbish heap which we have described above.



FIG. 12.—AREA OF EAST RUBBISH HEAP, LOOKING WEST, AND SHOWING EAST WALL OF BYZANTINE CONVENT.

The Byzantine Convent gave indications on the surface of a strong south-east angle and a decided line of wall running west from this, forming the south boundary to the whole Byzantine Area. This south-east angle was cleared, and the wall running west from it traced out, with results shown on the Plan.

The ashlar masonry of the Byzantine east wall towards the south end, shown in fig. 12, is cemented and the materials of construction are otherwise of a miscellaneous character, betraying a late period. Some of the ashlar

blocks look as if they had originally belonged to an earlier building, conveniently near at hand, within the Byzantine Area itself. In some respects they remind one of the ashlar blocks in limestone of the Palace of Omri, at Samaria, discovered by Dr. Reisner. If the resemblance were real it would add to the suggestiveness of their occurrence here.

It had already occurred to us that the east wall of the Byzantine Area might very well turn out to rest upon the Strong Wall at parts where this could be conveniently worked into its construction. The ashlar construction referred to above, however, going down besides, as it does, to the rock, showed at once that this could hardly have been the case where the south-east angle occurs. Besides, this emphatic angle itself seems inconsistent with the line that would naturally have been taken by fortification wall changing its direction from south to west. Further north, however, where comes the part of the wall next the north-east angle of the Byzantine Area, this was found to rest upon massive foundations in large, rough, megalithic-looking blocks, which actually turned out to be part of the Strong Wall in position. At this level the picture shows a narrow interval in the masonry, which itself betrays the later addition of what is above, and then come two courses of cemented Byzantine construction going up to the surface. Some of the blocks of this upper system are ashlar in character, but others again show, by their greater roughness and larger size, that they also originally formed part of the Strong Wall.

Once more, in tracing out westward the external face of the south wall of the Byzantine Area, this was found to change from the ashlar masonry of the south-east angle to construction in large rough blocks further west. These could at once be seen to be megalithic in character, if, indeed, they did not represent part of the fortifications in this region in position. This may be determined with greater certainty when we come to explore the Semitic levels within.

The region of the rubbish heap east of the Byzantine Area, described above, only represents, as said already, the south half of the whole east slope of the tell. There still remained the north half to clear, and this was conveniently plotted out into a rectangular area, 40 metres north-south by 20 metres east-west. This was subdivided into eight elongated rectangles, running down the slope in an eastward direction. Here it was soon found that the poor walls of Arabic squatters rested upon superficial débris or upon virgin rock, which almost everywhere cropped up at only a foot or two from the surface.

All this superficiality was in strong contrast to the considerable depth at which the rock occurred in the area of the rubbish heap already excavated. This inequality, however, was not at all discernible on the surface before excavation, and the reason was that it had got masked in the course of ages by the gradual formation of the rubbish heap itself. This had filled up the inequality between the deeper lying south part and the superficial surface of the rock on the north side.

Guessing the line north-south which might be taken by the fortifications in relation to the Strong Wall, which had already revealed itself underneath the east wall of the Byzantine Convent, this hypothetical line was included within the west limits of the area to be excavated. And, sure enough, as a counterpoise to the scanty interest presented by the Arabic walls, the line of the fortifications began to emerge all along. From two to three courses of the large rough blocks, characteristic of such fortification work, were preserved. The thickness of the wall was found to range between 2.30 and 2.70 metres.

Meanwhile, the separate work of tracing out the line of the fortifications had proceeded so far on the north-east boundaries of the site that the line of this had already been made out on the adjoining north side, and what now emerged was found to fit on to this.

The discovery of the Strong Wall in this region was the most satisfactory result that had as yet come out in the course of our investigations, for it clearly showed where came the east limits of the ancient city. The results that had previously emerged in the trial pits, in the rubbish heap, and in the adjoining area of late Arabic walls, were thus confirmed anew.

THE EAST GROTTA AREA.

As the virgin rock was gradually exposed all along the east borders of the excavation, it showed that peculiar formation of limestone bluff which makes up the natural fringe of the tell all round. Looked at from above, however, the rock surface showed an irregular line of fissures going north-south at some distance from its east borders, which indicated that there had been some natural process of collapse. This curious phenomenon is characteristic of such limestone bluffs all over the countryside. Seen from below, these bluffs often appear hollowed out in grottos, which are accounted

for by the soft character of the rock formation below, and its tendency to harden, and so to ledge out at the surface. The limestone itself is of a soft, friable character, and the ledging out in course of time tends to cause overweight above. This leads to the collapse of such ledges in course of time, and it is this process that explains the great broken off limestone boulders that strike the eye of the observant visitor as he approaches the site from the station of Deir-Aban. The intervals between the broken off boulders and the main mass of the limestone rock appear as yawning fissures with sharp edges, that come to be rounded off only in the course of ages.

Returning now to the area of superficial rock bluffs that had emerged in the excavation, the meaning of the fissures that had shown themselves will be at once apparent. The fissures here also indicated clearly that the ledging rock bluffs had broken off from the main mass, while their lurching position showed that beneath them had been a grotto area, which they now blocked up.

At the north end of the region of collapsed rock bluffs, as the result of some clearing, it was found possible to penetrate down into the fissures. The occurrence of pottery in the deposit below confirmed the suggestion that before the collapse of the overhanging rock bluffs there had been a great cave beneath, revealing traces of occupation. Among the fragments of pottery brought out were Semitic types of the later Bronze Age. To fix the general date there was a small fragment, apparently of a stirrup-vase with lustrous brown glaze paint, which was not native at all, but of Ægean fabric. The type of vase represented by the fragment could be taken to belong to the time when late Mycenaean wares began to be imported into Cyprus, and to be distributed generally throughout the East Mediterranean area and Egypt. The ware in question is contemporary with the Tell-el-Amarna fragments of imported Ægean pottery, and with the style of Late Minoan III. in Crete.* The fabric in question can thus be taken to belong to the epoch about the fourteenth century B.C. The cave seems thus to have been still in use, if not last in use, about that period. The general facies of the latest finds so far made in the cave would make them belong still to the Bronze Age, and to a period anterior to the introduction of iron.

* *Tell-el-Amarna*, Plates XXVI-XXX. *Journal of Hellenic Studies*, XXIII, pp. 198-9, figs. 13 and 14.

It was soon seen that it would not be possible to penetrate down into other parts of the fissures without some blasting, and this process was accordingly delayed to a later time of quiet labour, when there would be fewer workmen about.

Meantime, at the south part of this area, there occurred a sudden descent of the rock towards the region of the rubbish heap already described, and



FIG. 13.—ENTRANCE TO EAST GROTTA, LOOKING NORTH.

here it was found possible to explore the grotto area more from the side and below. On some clearing of the débris having been effected, the entrance to a second grotto, on perhaps a continuation of the collapsed cave already referred to, emerged. This is shown in fig. 13, looking north. The outside area in front of the grotto appeared as a rounded hollow, ledging out above

on the north side, where the inner recesses of the grotto appear in shadow. To our no small surprise the débris in this outer region began at once to reveal copious fragments of imported Ægean and Cypriote pottery belonging to the Bronze Age, of the period about 1400 B.C. Among these occurred fragments of painted amphorae, such as were common in the Ægean at the time immediately succeeding the sack of Knossos, at the end of Late Minoan II. With these were found fragments of wine decanters and other vases in the grey leathery fabric with geometric pattern in matt white, on a dull black glaze slip, which Professor Myres has called base-ring ware.* Although the deposit was very evidently not quite undisturbed, there was no reason to doubt that the Cypriote fragments were contemporary with the Ægean types, in whose company they were found.

Fig. 14 shows a typical series of such Ægean sherds alongside of the contemporary Cypriote specimens referred to. The Ægean fragments are items 1-9 above, while the Cypriote sherds are 10-15 below. Of the Cypriote specimens, the first shown is evidently a rim fragment of a painted bowl with wishbone handle, like those published by Myres in the *Journal of Hellenic Studies*, XVII, 150, fig. 7, 151, fig. 8 below. The other fragments below are all from jugs in base-ring ware like those shown *ibid.*, fig. 7, 5; fig. 8, 1, 2, 5, 6, 7. The Ægean company, in which the Cypriote vases published by Myres are found, is shown *ibid.*, fig. 7, 1, 2, 9, 11.

The base-ring ware was found in similar Ægean company in tombs of Enkomi, excavated by the British Museum in 1896.† Among the pottery from Tomb 84 at Enkomi there occurs an amphora in base-ring ware, which is clearly a native imitation of Ægean amphorae like those referred to above.‡ The garbled foliate motive in matt white on the body of this vase is copied from the Cretan repertory, and the waving band on the neck mimics a similar design in reserved technique, which the later Ægean amphorae have derived from the Palace Style of Knossos.§

* *J.H.S.*, XVII, pp. 150 f. Myres and Richter, *Catalogue of the Cyprus Museum*, pp. 46-7; Plate II, Nos. 271, 277. † *Excavations in Cyprus*, pp. 1-54, Plates I-XII.

‡ *Ibid.*, p. 38, Tomb 84, fig. 66, item 1189.

§ Compare *Jahrbuch des kais. Deutschen Arch. Instituts*, XXVI, p. 216; Abb., I, pp. 217, 218. Poulsen has here overlooked the important chronological datum afforded by this coincidence of foreign style with native fabric and so is misled by a blunder of Murray's into assigning this base-ring ware to an earlier date in the first half of the Second Millenium B.C. But why cast doubts on the results brought out by Myres?



FIG. 14.—ÆGEAN AND CYPRIOTE POTTERY FROM EAST GROTTO AREA.

The importance of these finds, from the point of view of comparative chronology, can hardly be overrated, and for this reason it was a pity to have been compelled to observe that the deposit was not quite undisturbed. Several separate vases of both kinds were represented, as could be seen from the fact that some of the fragments fitted. Other fragments have probably got bandied away elsewhere, and it is possible that some of these may be recovered after some clearing has been effected on the east side. Meanwhile, however, enough fragments that fit have been recovered to make it possible ultimately to reconstruct some of the more important types.*

From the chronological point of view, it is of paramount interest to know in what company of native pottery the imported vases appear. For the moment it may be premature to speak with positive certainty about a deposit not altogether undisturbed, but it could at any rate be noted that in the same baskets with the imported fabrics there were seen to come out types of native ware that have since then been found to recur in Tomb 1 of the North-West Necropolis.

On clearing the north face of the outside area, in which occurred the Cypriote and Ægean pottery, we found that the ledging rock above gave place below to rough walling with large boulders, which was seen at once to mask a recess behind. The removal of a few stones of this masonry made it possible to penetrate within the recess. This turned out to be a natural cave with some connection behind, towards the north, in the direction of the fissures already observed. The interior was found to be free of deposit for some distance from the roof. This deposit, as it appeared on the surface, consisted of powdery earth sprinkled with white, from the crumbling limestone ceiling of the cave.

A section of the deposit within the entrance was exposed down to the rock, when it was seen to have been disturbed like that outside. Notwithstanding this disturbance, the interesting fact came out that there were two distinct strata in the deposit. These will be best illustrated by means of the Plan and Sections of the area shown in Plate X. These two strata were separated by a sort of stamped limestone mortar floor. This had been laid with great care, as could be observed at the right-hand side, where remains of it adhered to the rock. Sections AA, BB, show this floor as we found the remains of it

* These will be illustrated in a separate study of the pottery of Ain Shems, to appear in a subsequent number of this Journal.

in relation to the deposit below and above it. The floor had apparently sunk from its original level, which is indicated on the section by dotted lines. This sinking must have been the result of pressure on loose earth below in course of time. It was soon apparent that over the greater part of the cave the floor had been disturbed at some period or other by persons in search of treasure. These, in the course of their operations, had mixed up the deposits, so that it was difficult to determine what belonged originally above the floor and what below. In the parts next the rock, however, it was still possible to distinguish the existence of the two strata. The result that then came out seemed of exceptional interest. The cave had apparently been originally used as habitation by a troglodyte people, possibly of pre-Semitic times. Then came a time when the use of the cave as habitation was given up. The floor was laid, and it was used henceforth for burial purposes. This was shown by the quantity of human bones in a crumbled condition, which, as we ascertained with sufficient probability, belonged to the deposit which had originally lain above the floor.

In contrast with this it seemed as if the troglodyte deposit, wherever observation was possible in the midst of the confusion, presented the phenomenon of gradual accumulation through raising of the floor-level, associated with primitive habitation. In no case where there was any indication at all of the original distribution of the deposit could we assign any of the human remains to the troglodyte accumulations. But further than this we were not able to go, pending explorations in other parts of the grotto which might afford a more certain clue.

The pottery found in the cave turned out to be of very great importance. With much probability, most, if not all of it, as yet examined, belonged together, and to the burial stratum, and considering the confusion it is only with the very greatest hesitation that we would be justified in assigning any of it to the troglodyte deposits. The one type that with some show of possibility might be so assigned is that represented by the two small vases shown in fig. 15, items 15, 16 (lowest row left). Characteristic of those are the suspension handles on either side of the shoulder, the cylindrical body usually widening out below, and the curved base underneath. What seems to be an earlier prototype of this shape has been found elsewhere in Palestine to occur in deposits that are anterior to the period about 2000 B.C.* The

* Vincent, *Jérusalem sous Terre*, p. 31, Plate X, 1, 2, 3.

specimens from the grotto seem to represent a late development of the type, and indeed the example with cylindrical body, in its form and decoration, suggests collusion with a somewhat similar type of terra-cotta alabastron, that in the Ægean cannot be earlier than the Third Late Minoan Period.* This would bring us down once more to the period about 1400 B.C., and so to the same general context as the Cypriote and Ægean wares found in the area outside the grotto. The later date suggested seems to be further indicated by the fact that a similar vase of higher shape was found to occur in Tomb 1 of the North-West Necropolis.†

In marked contrast to these, however, are the vases, which with more certainty can be assigned to the burial stratum above the floor. These are much more distinctly Semitic in type. Some, it is true, give indications of collusion with characteristic Cypriote types, such as the jugs in base-ring ware, like those of which fragmented specimens were found outside the walled-up entrance of the cave. The greater number were, however, frankly native, and among these stood out a saucer type of terra-cotta lamp which was found later on to occur in great quantities in Tomb 1 of the North-West Necropolis. Fig. 15, opposite, shows two such lamps from the cave, while in the topmost row are two similar specimens from Tomb 1. The type of saucer on which the lamp is based occurs in the tomb equally with the cave. The company in which these types are found in Tomb 1 appears in the picture in rows one and two. It is thus clear that the East Grotto is a burial cave like Tomb 1, and contemporary with that.

Tomb 1, from the character of the finds, was seen to be strongly under the influence of Egypt, and in this connection it is interesting to note among the finds of the East Grotto an alabaster pyxis (fig. 15, third left in lowest row), such as in Egypt is characteristic of the XVIIIth Dynasty, and the time about 1400 B.C.‡ This type of alabaster vase has a pedestalled foot, which, in the case of the specimen from the East Grotto, appears broken off.

* For an alabastron of this kind see *J.H.S.*, *ibid.*, fig. 7, p. 2.

† Fig. 15 (first left in second row).

‡ A fragment of a similar alabaster vase is seen to occur in an XVIIIth Dynasty environment at Rifeh and is figured in *Gizeh and Rifeh*, Plate XXVIIA, item 262. In the Ashmolean Museum an alabaster vase of the same type, but without the foot, occurs in the same company as Ægean stirrup-vases of the Third Late Minoan Period in a burnt votive deposit of the time of Amenhotep III. (*circa* 1414-1383 B.C.).

Alabaster vases of the same type were found to turn up in the Fourth City of Lachish in a context of characteristic Cypriote wares which in Egypt itself have a constant association with deposits of the XVIIIth Dynasty.*

The same kind of alabaster vase occurs in Cyprus in a Cypro-Mycenæan context in Tomb 66 at Enkomi.†

Professor Macalister once showed me at Gezer a similar alabaster vase in the company of Ægean pottery of the Third Late Minoan Period. This is



FIG. 16.—EAST GROTTO AREA, LOOKING SOUTH.

the same Ægean pottery which, over a wide East Mediterranean area, including Cyprus, Palestine, and Egypt, emerges in one context with the Cypriote wares, which are associated with the alabaster vases of Lachish. We cannot take coincidences over so wide a field to be fortuitous when we find them turning up once more in our own excavations at Ain Shems.

Besides that afforded by the occurrence of the alabaster pyxis in the East Grotto there seems further indication that the XVIIIth Dynasty dating

* *A Mound of Many Cities*, p. 117, p. 118, item 224.

† *Excavations in Cyprus*, p. 35, fig. 63, item 1041.

may, in a general way, be right in both cases. In Tomb 1 occurred the type of piriform two-handled vase pointed below, shown in fig. 15, item 10 (third left in second row). And it is important to note that Flinders Petrie has discovered models of this very type of vase at Rifeh, in Egypt.* In the same XVIIIth Dynasty context as these models occurred the fragment of an alabaster pyxis already referred to, similar to that found in the East Grotto at Ain Shems. The XVIIIth Dynasty dating has been further brought out by Petrie in a new and interesting Egyptian environment at Saft, which may be Goshen.† Here the outstanding Cypriote and Ægean types recur alongside of other wares apparently of native stamp, which turn up once more in Tomb 1 at Ain Shems.‡

It was now found that it would not be possible to penetrate further beneath the area of fallen rock without some blasting, but as this involved some risk while work was going on in the immediate environment, the operations of blasting were deferred to a more convenient season. This came round while the North-West Necropolis was being explored in the month of July.

After some clearing on the east borders of the Grotto Area the process of blasting was accomplished so far as to enable us to penetrate into the middle region of the cave.

The picture of fig. 16 shows the excavation which followed looking south. The fissures which mark the cleavage of the rock go along on the right-hand side, while the women are standing on the collapsed boulders.

When we got down beneath we soon saw on clearing a little that others had been here before us. The pottery also was much more fragmentary than hitherto, and some clue as to who the treasure hunters may have been was afforded by the presence of a terra-cotta lamp of Arabic date. The deposit resembled in a general way that already examined in the other parts of the grotto, but there seemed to be much more confusion and less indication of the original stratification.

We had thus, for the time being, to be content with the results already brought out. We have seen that in the hollow area at the entrance to the

* *Gizeh and Rifeh*, Plate XXVIIA, 29 (the two vase-models in the left-hand corner below).

† *Hyksos and Israelite Cities*, Plate XXXVIII A, at top right.

‡ *Ibid.*, XXXIX B, 1-15.

south part of the grotto region, Cypriote and Ægean pottery of well-defined types occurred alongside of native Semitic wares, which were found later on to be best represented in Tomb 1 of the North-West Necropolis. These same native wares appeared in the burial stratum in the south part of the grotto region without any noticeable accompaniment of Cypriote or Ægean fabrics. On the other hand, the imported wares were found to turn up in the same baskets with native wares in the middle and north parts of the Grotto Area. Thus, on the whole, the conclusion seems justifiable that both kinds belong chronologically together.

Once more the same types of native Semitic wares were present in the East Grotto and in Tomb 1. And in both areas not only did there occur objects characteristic of the XVIIIth Dynasty in Egypt, but the pottery itself seemed to betray the stamp of strong Egyptian influence of the same period. Further, the Cypriote and Ægean pottery of the East Grotto Area emerges in the same XVIIIth Dynasty context in Egypt itself. Thus we have represented on the spot a co-ordination of foreign evidence which may ultimately prove of further value when we come to correlate the finds from both areas with corresponding deposits within the city.

THE BYZANTINE AREA.

We have now to return to the Byzantine Area itself. The excavation of this was not a case of exploration proper, but of the removal of the Byzantine débris, with a view to getting down ultimately to the Semitic levels beneath.

This Byzantine débris, as soon became clear, did not show any stratification that might be regarded as of significance, from the point of view of the history of the site. The painted Arabic and other stray pottery at the surface was succeeded deeper down by a deposit in which Byzantine objects, other than very poor pottery, were conspicuous by their absence, while anything Semitic that turned up was of an entirely stray character and belonged properly to another and earlier context.

It will thus be sufficient to describe the Byzantine building itself, that emerged in the course of this excavation, without going into the question of finds on stratification, except by the way.

Excavation on the Byzantine Area was started at the east end, which was

divided up into a series of rectangular plots going east-west, similar to those already referred to. The débris was thrown out on to the area of the East Rubbish Heap previously explored.

These operations are shown in the picture of fig. 17, looking north-west. The planks in the picture leading down to the earth shoots are shown propped up against the east wall of the Byzantine Convent itself. The alternative



FIG. 17.—EXCAVATION OF EAST BYZANTINE AREA, LOOKING NORTH-WEST.

view of fig. 18 shows in picturesque fashion the coming and going of the women in the course of carrying away the earth. Fig. 19 shows the excavation of this east area, including the arched gallery running north-south, at this end nearing its completion.

The same method of excavation in rectangular plots was pursued throughout, and payment by day's wage was adhered to until such time as the excavators were able to distinguish the underlying Semitic deposits from the later ones.

A time, however, came when the surface of the Semitic strata was



FIG. 18.—WOMEN CARRYING AWAY EARTH.



FIG. 19.—EXCAVATIONS IN EAST GALLERY OF BYZANTINE CONVENT.

distinguishable by its ruddier, tawny colour, due to the presence of the débris of burnt sun-dried bricks in the deposits. It was accordingly now found possible to apply the wager system of piecework, and the whole central and north-west parts of the Byzantine Area were excavated down to the surface of the Semitic deposits in this manner. By this method the work was done at much less expense and saving of time than are ever possible on day's wage alone.



FIG. 20.—COURT OF BYZANTINE CONVENT, LOOKING SOUTH (WADY BULUS IN BACKGROUND, RIGHT).

The results of this excavation are best understood by reference to the Plan, shown on Plate VIII, and by help of the pictures taken while the work was in progress and after its completion up to date. From the Plan it will be seen that the part of the Byzantine building brought out is essentially a rectangular system running in its greatest length east-west. The central part of this system consists of a quadrangular court entirely open to the sky. Fig. 20 shows the greater part of this court looking south, with the mass of later walls encumbering its free space.

This quadrangle is flanked on the east, south, and west sides by long, spacious galleries which were arched above, and are each entered from the court by two arched doorways. Where the building is best preserved the spring of the arch still shows, though no arch is left complete. These galleries may have served as dormitories. Fig. 21 shows the excavation of the East Gallery nearing its completion with the two doorways of access to it from the Central Court. The jambs of these doorways are towards the outside, so that



FIG. 21.—EAST LIMITS OF CONVENT COURT, LOOKING SOUTH-EAST, SHOWING DOORWAYS INTO EAST GALLERY.

they could be locked from within. A view of the south door of the East Gallery looking into the Central Court is shown in fig. 22.

The South Gallery has the same general appearance as the one already referred to on the east side. Like that it has two doorways equally controlled from within. A view of this gallery, with the doorways opening from it into the Central Court, on the north side, is shown in fig. 23. The massive character of the walls, especially as seen through the east doorway; comes out very clearly in this picture as well as in the last. Owing to the

rapid slope down south, the south wall of this gallery is but poorly preserved in comparison, but it has been already referred to as having worked into it materials from the strong wall, if it did not actually rest upon part of the same. The north wall of the gallery shown in the picture presents a similar phenomenon. The middle part of this, between the two doorways, shows large, rough blocks, the affinity of which with the megalithic construction of fortification wall is apparent at a glance. But here again,



FIG. 22.—SOUTH DOORWAY OF EAST GALLERY, LOOKING NORTH-WEST INTO CENTRAL COURT.

whether what we have got before us is actual strong wall or only materials from such, incorporated into the later system, can only emerge as the result of further investigations. In contrast with this large construction, the west part of the wall is in much smaller ashlar masonry, which in its turn presents a miscellaneous appearance, as of re-used blocks from some other building.

It will be observed that the west doorway has on its left-hand side a blocking up in somewhat larger masonry, which would indicate that it was originally meant to have a much wider entrance into the Central Court than

the doorway. When the building was turned into a khan this west doorway itself was blocked up.

These galleries are so like each other in plan that it is not necessary to go into any description of the one on the west side. The north doorway of this, however, is relatively better preserved than the others, and for this reason it will require some mention presently.

An external chamber with doorway on the west side, outside the south-west angle of the South Gallery, was added on separately, but it need not



FIG. 23.—SOUTH GALLERY OF CONVENT, LOOKING NORTH-WEST.

therefore be an afterthought. This chamber had arched ceiling and doorway, and the spring of the arch is still preserved on the north side. Here it is particularly apparent that for the construction of the arching a more compact kind of calcareous stone was used than the friable limestone of the district used generally in the walls.

The external position of this chamber, in relation to the main system, gives it a bastion-like appearance which is in keeping with the strong, massive character of the building as a whole.

If we return to the great quadrangular court, which forms the central feature of the system as so far exposed, we shall not fail to notice the rectangular construction isolated against its north wall. The massive cemented walls of this projected above the surface in a way to suggest that it might have been the chapel of the convent. A poorly preserved Byzantine capital, out of position on the spot, served to give an air of plausibility to this suggestion. In the south-west corner, however, the top of a curved vaulted angle had come out as the result of some local digging on the spot, and the arrangement and orientation of this always seemed difficult to reconcile with what one would structurally expect in the case of a chapel interior. The explanation soon came when the rapid wagger work carried on here brought out in this south-west angle of the chamber an enormous rectangular carefully cemented cistern. The rounded arched angle previously observed thus turned out to be part of the spring of the ceiling of this cistern.

One result of the discovery of this cistern, instead of a more sacred building, was that our Byzantine church or chapel would have to be sought not inside but outside the area excavated. This would mean that the system already brought to light formed part of the convent building proper, and that outside this, on the west or north side, there was possibly a second more public enclosed area in which the church would have to be looked for.

Not only so, but it actually turns out that this twofold arrangement of public court and church on the one hand, and private conventual part on the other, is a characteristic feature of convents of the same period elsewhere in Palestine. The twofold arrangement referred to is aptly illustrated by the example of the Convent of Abdeh, which has been brought into notice by the investigations of the French Dominican Fathers of the *École Biblique* at Jerusalem, and by them reported on to the *Académie des Inscriptions*.*

The analogy afforded by the convent at Abdeh would lead us to expect the church and outer court of the convent to west of the area excavated by us. On the other hand, the fact must not be left out of account that there is in this direction no apparent break in the wall such as might indicate an exit. Indeed, the only exit of this kind from the part of the system already excavated is that represented by the wide doorway opening off the Central Court towards the east end of the north wall of the convent. Thus for the moment the alternative possibility is not entirely excluded that the church we are in search

* See *Revue Biblique*, 1904, pp. 1-59, Planche IV-V.

of may, after all, in the case of Ain Shems, turn out to be somewhere on the north side.

The affinity with the convent at Abdeh, referred to above, comes out not only in general arrangements but in architectural details. This will best be illustrated by reference to the north door of the West Gallery, from which a view of the doorway has been taken looking out eastward into the Central



FIG. 24.—NORTH DOORWAY OF WEST GALLERY, LOOKING EAST.

Court. This is shown in fig. 24, with the cistern chamber appearing in the distance.

It will be here observed that the doorway has the usual arrangement of jambs, with reveals next the outside so that the door could be controlled from within the gallery. It is noticeable, however, that the reveals begin to arch

above much more quickly than is the case with the body of the doorway, corresponding to the thickness of the wall. A double arrangement of doorway arching thus emerges, which comes out clearly in the drawing of the whole as reconstructed by Mr. Newton in Plate XI. The system recurs at Abdeh in a typical and almost complete example, which shows the double arching above preserved.* The reveals of the Ain Shems doorway are considerably shallower than at Abdeh, but in principle they are the same.

By reference to the Plan it will be noticed that the north-west angle of the West Gallery of the building is not a right angle, but somewhat less. The north wall also, from the region of the cistern westward, is correspondingly out of line, that is to say, it goes slightly north of the direction westward it ought to have taken were the north-west angle to be a right angle. Mr. Newton has, however, observed and worked upon the plan an underlying system of construction about the cistern chamber which orientates more correctly in relation to the north-west angle. This evidently represents the plan as originally conceived. The superimposed walls, which are out of line, are thus evidently an alteration.

This observation brings us to consider the probable events that led to the destruction of the building. These can most easily be connected with the period of Arabic invasions and the conquest of Palestine by Islam ; and that the convent was actually taken possession of and put to new uses seems suggested by a discovery made in the South Gallery of the building. This was a series of feeding troughs in stone slabs, carefully cemented within, which we found built against the north wall on either side of the east doorway, leading into the Central Court of the convent. These troughs point to the use of the convent as a sort of khan, and this secular use of a sacred building can hardly be attributed to any others than conquerors of another religion, such as the invading Arabs were.

But the sacred building fell upon still more evil times, and this was after the khan had fallen out of use and the whole area was occupied by the Arab squatters of later ages. The poor hut walls built by these cover the whole environment ; and of so little significance are they, from the point of view of the history of the site, that though they are underground they are hardly distinguishable from other walls on the surface at Ain Shems that may have been built as late as fifty years ago.

* See *Revue Biblique*, *loc. cit.*, p. 16, fig. 1.

These walls having been put on the Plan, they were removed on the system of piecework as a necessary preliminary to the investigation of the earlier Semitic deposits underlying the floor levels of the convent. The ubiquity of these squatters' huts will be realized by a glance at the Plan; their relation to the Byzantine system is shown on Section AA.

The late period to which it seems reasonable to assign the building of the convent might make it appear doubtful whether it was ever entirely finished when the period of Arabic conquests began. The almost total lack of finds, characteristic of the period, might at first sight seem to point in this direction. If, however, we keep in mind the use of the building as a khan, at a period when it was still more or less intact, we shall not expect its floors to have been left encumbered with the perishable objects and débris left there by its original occupiers. It is a constant phenomenon of reoccupation that it obliterates the evidence from deposit, left by the immediately preceding occupiers, by simply clearing this away. More light may emerge with the discovery of the church itself, and if this was in an outer court, like that at Abdeh, less intensive reoccupation here might mean an accumulation of earlier Byzantine deposits, more favourable to investigation than was the case with the convent itself.

Meantime, the discovery of some decorative architectural features may help to afford a positive clue. Among these is the Byzantine capital, shown in fig. 25 and in Plate XII, after a drawing by Mr. Newton. It was found out of position in the south-west part of the Byzantine Area. The Byzantine character of this kind of Corinthian capital would assign it to the same period to which we take the convent to belong, and there seems no reason to doubt that it belonged to some part of the building, if not to the church itself. The pale compact limestone of which it is formed is quite unlike the usual very friable local stone, and it is more likely that it was imported from a distance to suit the sort of difficult under-cutting involved in this kind of Corinthian work. It has, indeed, more resemblance to a kind of soft, compact limestone, often observable in similar work in Jerusalem, and it may even be from some quarry from which Jerusalem also drew.

In contrast with this, the Ionic capitals shown in Plate XIII below are in the ordinary local limestone. In keeping with the brittle character of the stone the carving is kept as flat as possible. The example now at the wely has the Greek cross on it, and there is thus every probability that it was taken from the convent, and that it belonged originally to the Convent Church. The

capital, from the South Gallery of the convent, is of the same order and dimensions, and must belong to the same system.

The characteristic blocks, one with a Greek cross on it, built into the walls of the cistern chamber tell a story of remodelling which may be Byzantine, but is quite as likely the work of the same reoccupants who transformed the convent into a khan. We have already noticed other indications of rebuilding in this part of the convent.



FIG. 25.—BYZANTINE CAPITAL.

The destruction of the church, which would account for the collapse of columns and capitals, probably belonged to the same period. Then and later these distinctive architectural features would have strayed from their original environment to where we found them.

Before leaving the Byzantine Area we have to mention an isolated find of considerable interest, made in the south-east region of the court, just a little outside the south door of the East Gallery. The excavators here had by accident got into the Semitic deposits underlying the convent floor. No sooner had they done so than there emerged into view a fine painted vase with strainer spout of the same "teapot" type as one discovered by Bliss and Macalister at Tell-es-Safi.* The characteristic geometric decoration in matt red and black, with central bird-panel on a light ground on the shoulder, looked as if it might turn out to have a provenance outside Ain Shems, and it seemed, at any rate, significant that there was little in the ware to suggest that it was a native fabric of the district. The discovery of the quite similar vase at Tell-es-Safi may indicate rather that the affinities for this style may ultimately have to be sought in Philistia itself. The stratigraphical position of the vase, rather high up in the Semitic deposits, would agree with the possibility of connections in that direction, while peculiarities in its geometric decoration, which seem suggestive of a derivative relation to Ægean traditions of style, tempt one to guess for it a period not too far removed either way from the time about 1200 B.C.†

The chance discovery of this fine vase at the first point at which we had as yet touched on the Semitic deposits within the Byzantine Area seemed to afford a happy augury of further finds in a rich environment of the site, when we should come to explore systematically the Semitic strata themselves.

THE FORTIFICATION WALLS.

It has been already said that while we were excavating on the east borders of the Byzantine Area it was found that the east wall of the convent was actually found at one point to rest on strong wall as foundation. This was at the north-east angle of the building. The inner face of the Strong Wall was subsequently brought into view at the same point, after the interior of the convent gallery at this end had been sufficiently cleared. The width at this

* *Excavations in Palestine*, pp. 89 f., Plate 44. Q.S., 1900, p. 342; *British School Annual*, VI, p. 117.

† Compare Thiersch in *Jahrbuch des kais. Deutschen Arch. Instituts*, 1908, Anzeiger, pp. 378, 379, fig. 10; pp. 381, 382-4. Thiersch here (p. 382) justly cites the quite analogous XXth Dynasty Philistine pottery, found by Petrie at Yehudiyeh, and illustrated in *Hyksos and Israelite Cities*, Plate XVII.

part was found to be 2.25 metres.* The rough megalithic blocks of the Strong Wall, with their mud mortar setting, were easily distinguishable from the miscellaneous cemented ashlar construction above, belonging to the convent. Further north the Strong Wall, as seen on the plan, takes a line south, which is somewhat east of that taken by the east façade of the convent. But as it comes opposite the north-east angle of that referred to above, it takes a turn west and then south, in such a way that the earlier and the later walls coincide for some distance in their course south. About half way along in this south direction the wall seems to turn west and is entirely lost to view. But, as has been mentioned already, the south-east angle of the convent was not found to have any fortification construction underlying it, and this would once more agree with our conjecture that the Strong Wall turned west and then probably south again without touching this south-east point.

The middle part of the south façade of the Byzantine Convent once more shows megalithic construction underlying it, but whether this is strong wall in position or not can only be ascertained for certain when we have come to investigate the Semitic levels in the area on the inside where comes the south gallery of the convent.

The south-west angle of the convent has outside it the massive bastion chamber with door west, which has been referred to already. Here the Strong Wall is seen to emerge from underneath the west wall of the bastion, a little to left of the doorway as one enters, at an angle which shows an increasing divergence outward from the line taken by the south wall of the convent itself. From this point onwards the course of the Strong Wall is free of any later encumbrance all round, until we have once more returned to the Byzantine Area at the point from which we have started.

The tracing out of the Strong Wall had for its primary object the delimitation of the boundaries of the ancient city as a whole. This preliminary investigation did not concern itself with the history of the fortifications as such, and for this reason it was found sufficient for the moment to trace out its course superficially on the outside. Soundings to determine its actual height going down to the virgin rock were made here and

* It is interesting to note that this width would correspond to $4\frac{1}{2}$ cubits on a view which would make the cubit equal to about half a metre. I understand that a similar unit was found to occur at Samaria.

there, and an occasional trench across enabled us at interesting points to determine its width. But no investigation was made on the inside, as this would have involved the inconvenience of cutting off our exits and the risk of unwittingly disturbing mud walls and stratified deposits within, which were better reserved for the later investigations which concerned them.

At very few points was the Strong Wall discernible at the surface, and any guess as to its probable course turned out, in nine cases out of ten, to be wrong. What we generally found was that this course did not, as we had originally expected, coincide with the top of the steep slopes to the rock bluffs all round, but ran considerably within this line. One might even, at first sight, be disposed to ask how it was that these rock bluffs themselves were not taken as the natural line for the fortifications to found upon. But the example we have before us already in the East Grotto Area is enough to make us remember that the hollow character of these bluffs, below and their tendency to collapse, made them but insecure foundations. The fact that they were systematically left outside makes it rather seem as if they were meant to secure the strategic advantage of a natural outer line of defence, which could on occasion be made very inconvenient to any foe entrapped on to the terrace above their precipitous course.

Our only course was accordingly to go from the known to the unknown ; and as a matter of fact the only part of the Strong Wall all round, that with any certainty was visible from the surface, was the outline of a bastion on the north-east boundaries of the site. Only one course of massive megalithic blocks was discernible, but the emphatic rectangular projection of the construction outward left no doubt whatever that we had here to do with a type of bastion such as is characteristic of Semitic fortification all over Palestine, and has recently received interesting illustration through the excavations of Macalister at Gezer.

A view of the front of the North-East Bastion, looking south-east, is shown in fig. 26. It is preserved in the greater part of it for three courses of megalithic masonry, resting on the limestone rock, at 1.90 metres from the surface. The length of the bastion was found to be 9 metres, while it had a projection from the main wall of 5.95 metres on the left-hand side, and 4 metres on the right. The greater projection of the left-hand side is accounted for by the fact that the Strong Wall behind curves rapidly away in the south direction; at the point where the bastion comes.

The method of construction in massive courses of great rough blocks,

with but slight indications of facing, is that common in megalithic work of the Bronze Age, not only in Palestine and Syria, but all over the Mediterranean area and West Europe. The manner in which the blocks appear in diagonal series across the courses is a universal characteristic of such work, and the method of filling up the intervals between, and any irregularities in the shapes of the blocks with smaller stones, is equally widespread. Mud mortar seems to have been used as a setting, not only in the wall construction itself, but in the rubble filling of the interior.



FIG. 26.—NORTH-EAST BASTION, LOOKING SOUTH-EAST.

As is very usual in megalithic work of this and earlier times, the bastion is not of one piece with the Strong Wall, and it masks a shallow angle of that which was meant to give it greater grip.

If one were to judge by the general facies of the pottery found at its foot, the bastion might very well belong to the same Bronze Age Semitic period as the burial stratum of the East Grotto, and we have already given reasons for suggesting that this ought to be assigned to the era about 1400 B.C. But until the Strong Wall has been investigated more in detail, and data are

forthcoming which will enable us to say something more positive about the history of fortification at Ain Shems, it will be necessary for the moment to take any such tentative suggestion with a due amount of caution.

The work of tracing out the line of the Strong Wall was a matter of comparative simplicity in the north-east region of the site, as well as in the whole area to south and south-west. Our real difficulties began on the boundaries to north-west and north. Not only did the line of the wall take a different course to that expected from surface indications, but as often as not,



FIG. 27.—STRONG WALL, ASCENDING SOUTH.

when found, instead of going down to the rock it turned out to rest on a subsoil of earlier débris. Thus our quest, which for the moment was simply the line taken by the wall, was complicated by considerations as to earlier and later, which could not conveniently be gone into at that time. We had thus to limit the scope of our investigations by taking as provisional line for the wall in its original connections whatever parts were of really massive construction and were found to go down to the bed rock. It

is this line, subject to revision, that is shown on the general plan of the site.*

A trench cutting that appears in the right background of fig. 26 indicates the direction taken by the Strong Wall after it leaves the North-East Bastion, and this is south-east to south. Where the trench is visible the ground rises to a steep bank, and here comes the part of the Strong Wall shown in fig. 27. On the slope, apparently to obviate the risk of shifrage, boulders of exceptional massiveness were selected for the lowest courses next the rock, and some of these appear at the bottom of the picture. As usual, from two to three courses are preserved, and the period of construction of this part of the wall may be taken with considerable probability to be the same as that of the North-East Bastion.

THE SOUTH GATE.

The interest of our investigations on the strong wall culminated with the discovery of the South Gate of the city. As the gate, from its position, can be taken to lie somewhat in the line of the north-south axis of the city, it affords us the most important clue that has yet turned up towards an ultimate understanding of the internal arrangements of the city, when we shall have come to excavate within the walls. The orientation, however, towards the south and Wady Bulus was a great surprise, especially as with the best will in the world we had not been able to detect any certain trace of a gateway on any other side. If there were no entrance on the north or north-west side, it would seem, indeed, as if the city sought its principal strength in the strategic device of turning its back upon the Vale of Sorek, at the same time that it presented an unbroken front in that direction.

The arrangement of the gateway will be best understood by reference to the Plan and Sections of Plate XIV. Fig. 28 is a view, looking west-north-west.

What the Plan brings out quite clearly is the fact that the gateway is essentially an interval between two projecting rectangular bastions, right and left. Of these bastions, the more important is the one to the left. This

* *Q.S.*, July, 1911, p. 142, does not contain the line of the wall at the west and north-west parts which came out later.

encloses within it a small chamber, with doorway on the east side, commanding the entrance itself. The whole arrangement makes the impression of a guard-room, put on purpose on the left-hand side for some special reason, as the unshielded right-hand side of any person entering the city would naturally have required the guard-room on the right hand rather than the left.

The right-hand bastion has two small chambers going north-south, neither of which has any direct communication with the entrance or with each



FIG. 28.—SOUTH GATE, LOOKING NORTH-WEST.

other. They may have served as dungeons, into which prisoners could be let down from more important outlook rooms above. Constructively, they represent a feature which is very characteristic of megalithic fortification throughout the East Mediterranean area.

To understand the arrangement of the entrance itself, it will be necessary to think away the shaded walls which represent late additions or accretions which have nothing whatever to do with the gateway as originally conceived. The left-hand side wall shows this arrangement at its clearest. The essential

point about this is that the wall is recessed in such a way as to present an angle right and left as one faces the doorway into the guard-room. Keeping this peculiarity in view, and thinking away the shaded construction of the right-hand wall, one sees at once that this was similarly recessed. The strongly projecting double reveals that thus emerge right and left of the entrance must have been of very great importance in relation to two sets of double doorways, an external and an internal, both commanded from the interior interval between them, leading direct to and from the guard-room.*

The gateway, taken as a whole, seems to present an open front to the south, but analogies elsewhere would suggest that access in this same direction may not at all have been so unhampered as at present appears. Gateways of this kind very often have an outer line of defence which compels anybody approaching to do so sideways from the right. Doing so, any assailant would be forced to present his exposed right-hand side to anybody retaliating from the right-hand bastion and the wall adjoining. It is quite possible that further investigations outside the gate may reveal the presence of such a system.

In its general aspect the gateway shows characteristic points in common with fortified portals elsewhere in Syria and further afield on Asiatic soil, and Vincent has already pointed out some of these.†

The excavation of the débris encumbering the gateway presented a very interesting stratification of the deposit. This is shown in Section AA. Next the surface deposit come some poor remains of Arabic walls, which have nothing to do with the system as such, and which were apparently built after the existence of the gateway was entirely forgotten. Below this comes a massive stratum consisting principally of burnt sun-dried bricks, and it is noticeable that the surface of this curves down outwards in an artificial slope reminding one at once of the analogous phenomenon presented by the Red Burnt Stratum of the East Rubbish Heap. The slope down of the débris referred to must have had the same cause in both cases, and the suggestion is that it was occasioned by the throwing out of rubbish from within the city. The interesting point about the débris was that the bricks had been clearly subjected to the action of fire. And this was not as might be thought in our northern climates of Europe, because the bricks in their manufacture had

* For a similar arrangement of double reveals presented by the South Gate at Sinjerli see *Ausgrabungen in Sendschirli*, IV, 1911, p. 262, fig. 168.

† *Q.S.*, July, 1911, pp. 148-9.

undergone the process of baking in the furnace. To begin with, they were not baked at all but simply dried in the sun, and it is with such sun-dried bricks, to which greater cohesion is given by means of chopped straw, that the fellahin of the lowland and valley country build their houses at the present day. It was as unbaked, sun-dried bricks, then, that they formed part of the constructions to which they originally belonged. Thus we are led to the conclusion that the burning was an after-event—in other words, an action to which the bricks were subjected while they were still in position. This is further indicated by the fragments of charred wood and the burning black of bricks that in position must have stood next to wooden beams and framing. It was not bricks that were fired, but houses that were burned. And the evidence of such burning in regions so far apart as the quarter of the South Gate and the east regions of the city point to a conflagration on so wide a scale as to exclude the suggestion that it was the result of any mere accidental breaking out of fire. The data rather point to a general conflagration at different parts of the city at one and the same time, and the inevitable conclusion is that so general a phenomenon has to be connected with one contemporary event of great significance: the burning of the city as the tragic finale to a successful siege.

But who were the besiegers, and who the besieged? This is a fascinating question, and we may haply be able to answer it when, like those conquerors of old, we have penetrated through the South Gate into the interior of the city. But perhaps we should also have to find out who were the people buried in the cave-sepulchres and who in the later chamber-tombs of the North-West Necropolis. The historic sequence revealed already there affords a picture of strong and dominant Egyptian influence in the grotto burials, which seems to be succeeded in the chamber tombs by phenomena that appear to have much more of a local stamp. And it is possible that the transition indicated here may turn out to have co-ordinated with it a sequence of events within the city in which the siege and conflagration of that time of war may form a connecting link.

Of all evidence, apart from inscribed documents, yielded by excavation, that afforded by the pottery is the most important because it is always there. For the moment, however, caution is advisable, and we cannot go further than to say in a general way that of the pottery found with the burnt débris encumbering the South Gate the dominant types recurred in the North-West Necropolis. But we have still to wait in order to find out what sort of pottery and other

objects of daily usage will turn out to occur on the floors of the houses of the Burnt City.

It was curious to note that at one part examined the lower levels of the Burnt Stratum showed a greater predominance of charred wood and clay than was generally observable at the top, and this phenomenon would seem to indicate that we had here part of the *débris* from flat roofs. These would in that case have been constructed of dense compact clay resting on reeds and supported on wooden rafters. It is a method of roof construction that has survived among the fellahin of the plains to the present day. It is, however, possible that the presence of these flat roofs, with their copious use of underlying wood construction, may have had its own drawbacks in time of siege by fire. The pitch from fireballs projected on to such roofs dissolves and oozes through in a way that easily penetrates to the underlying woodwork, of which it then makes short work.* The collapse of such roofs, accompanied as it would have been by the disintegration of the clay construction, would soon turn the interior into a fiery furnace, and in this furnace the sun-dried bricks of the walls would now be baked for the first time, their framing of woodwork being but fresh fuel to the flames.

It was noticeable that the deposits underlying the Burnt Stratum and between that and the rock were distributed more or less in horizontal planes instead of sloping down like those above them. First came a strip, which was fairly uniform, of black charred wood and ashes. And if we can go so far as to imagine that an essential part of the plan of siege consisted in an attempt to effect an entrance through the gateway by burning the doors themselves, it is tempting to see in the layer of black charred wood an indication which might serve to show that the attempt succeeded. The outpouring of tar on brushwood piled up against woodwork and the firing of pitchballs on to battlements and roofs would then be but the usual episodes of a concentrated attack, leading up to one dire result: the collapse of doorways, towers, and bastions, and the final rush in through the flaming breach. The thin pale layer of deposit next the living rock was in complete contrast to the pitch black stratum above it. The light colour indicated clearly that it represented disintegrated limestone remaining over after the rock had been levelled away

* In primitive townships in certain parts of Africa, in order to save habitations under siege by fire, the first thing done is the removal of the roof bodily in advance, and this is so constructed as to facilitate the operation.

for the entrance roadway. Such limestone when stamped hard forms a good road surface, and it is possible that such was its use here.

We thus see, then, that this interesting stratification in the South Gate sums up as it were in chapter headings the main outstanding events in the history of the city. First there is the laying of the entrance roadway and the building of the gateway in a time of remote and tranquil peace, when that city of valleys was nascent and full of promise. Then, in red letters writ large, the period of siege with fire and sword, and the final conquest of the city, represented with poignant suggestiveness by the thrown-out débris of the Red Burnt Stratum. Last of all, after a long interval of decline, that period of slow death when there was no longer even a memory of the South Gate of the city which we see reflected in the latest deposits next the surface that obliterate its presence.

PALESTINE EXPLORATION FUND.

THE KHAZNEH AT PETRA.

By GUSTAF DALMAN, D.D., PH.D.

THE Treasury of Pharaoh, in Arabic, "Khaznet Firaun," has never failed to rouse the most vivid interest in all visitors to Petra as the most perfect two-storied façade which has been preserved in the East from antiquity until now. But all closer examination has failed because of the impossibility of taking exact dimensions of its elevation. The narrowness of the gorge, whose western declivity the "Treasury" adorns, does not even allow of taking photographs from an adequate distance to obtain the correct proportions of this unusual work of post-classical art. Even Alfred von Domaszewski, after having given a detailed description of the "Treasury" in Brünnow's great work *Die Provincia Arabia*, Vol. I, designated an exact architectural drawing of the façade as urgently required, and I myself, though I had the advantage of being able to use better photographs than ever existed before, mainly taken by Swedish members of the American colony at Jerusalem, could but be of the same opinion. The main difficulty was to reach the second story, for no ladder seemed to be attainable at a place like Petra. I had been told of an Arab who ventured to leap to the cornice of the lower story from the rock at its side, but I doubt whether a European would do the same. It is to the credit of Dr. Mackenzie's spirit of enterprise that he saw no difficulty in the construction and transport of a ladder of the required length (in four parts), the measure of which I had pointed out to him. I also recommended to him a youth of the name of Musa of Elgi, as qualified to help him to overcome practical difficulties; but I must admit I felt somewhat nervous about the success of the undertaking in which I took such a deep interest. So much the greater was my satisfaction when, on November 11th, 1910, I saw Dr. Mackenzie's ladder standing at the "Treasury" in its proper place,* his and Mr. Newton's tent

* The ladder was afterwards deposited at Elgi in the hands of Musa, to be used for undertakings of the same nature.

near at hand, and my friend Musa on the rock at a tremendous height, to which few others had ever ventured to climb, dropping a long measuring-line from above over the wonderful façade. Then I knew the victory was won, and the Palestine Exploration Fund would have the honour of adding a new and important item to its unequalled reputation for the investigation of old and new Palestine. That it was not easy to attain this aim the reader may infer from Dr. Makenzie's short notes in the *Quarterly Statement* of January, 1911, pp. 10 and 11. By removing much of the sand accumulated in and before the Entrance Hall, it had been possible even to clear the steps leading to the entrances, which had never been done before. A complete measured drawing of this renowned work of art was now for the first time possible, and I venture to say that it has been done with admirable conscientiousness and accuracy by Mr. Newton, whose work it is my privilege, at the request of the Palestine Exploration Fund, now to accompany by a few notes.

The trustworthiness of Mr. Newton's work is shown by comparison with any good photographs, the best of which I hope to have published in my work *Neue Petra-Forschungen und der heilige Felsen von Jerusalem*, Leipzig, 1912. How necessary it was, may be seen from the mistakes of former drawings of the "Khazneh" which now can be proved. In Léon de Laborde's *Voyage de l'Arabie Pétrée* (Paris, 1830) Mr. Hittorf gave plans, section, and elevation of the façade. There are a great number of errors of detail, but the general proportions are admirably near truth. Mr. Hittorf's measurements give the lower story 15 metres height, the upper story 16, the roof with urn 7, against the 15.52, 15.05, and 8.20 metres measured by Mr. Newton. The whole height given by Mr. Hittorf was (out of 38 metres) only 77 centimetres below the actual reality. Mr. Hittorf's most serious mistake is that he makes the columns of the upper story nearly one metre too long, the roof with the urn one metre too short.

After De Laborde, only Von Domaszewski, in Brünnow's *Die Provincia Arabia*, has given elaborate drawings of the Khazneh. He repeats Hittorf's ground plan, offers a new but not much better plan of the upper story, and communicates an elevation, made by Paul Huguenin, all without any scale. Against the elevation of Mr. Huguenin, I showed in my book *Petra und seine Felsheiligtümer*, p. 150, that the lower story is much too high, the upper story too short. If the columns of the lower story in Huguenin's elevation are taken to have the height of 12.65 metres as they actually are, his lower order would be 15.40 metres, but his upper order only 9.90 metres, which

is about 2 metres less than it is in reality ; and the roof with the urn 5·60 metres against 8·20 metres in reality. I myself gave the lower story about 14 metres, the upper story 15 metres, the roof only 4 metres, and was thus in the last instance badly deceived by appearances.

Hittorf's ground plan is, on the whole, fairly good, but it shows insufficiently the irregularities of the building. More of these appear on my second ground plan, given in *Neue Petra-Forschungen*, mainly based on measurements taken by me in 1909 ; but even in this respect Mr. Newton's plan is better than all its predecessors in its exactitude. As a matter of course the plan of the second story could not be accurate until now. It may be remarked that Hittorf gave it a depth of 7 metres ; Von Domaszewski about 5½ metres, while it has actually 6 metres.

Mr. Newton understood it to be his task to give an accurate design of the architecture of the building as far as it can be traced with safety. He refrained from attempting a restoration of the sculptured figures in its decoration, which, not by the hand of time, but by the musket-shots of modern Bedouin, have been to such an extent destroyed that many details will never be fixed with certainty. Even such close inspection as was now possible with the help of the ladder did not add to better understanding of the figures. They must be studied either on the spot with a telescope or by means of good photographs. I shall, therefore, abstain from making special comments upon this part of the Khazneh's ornamentation, and only refer to my *Neue Petra-Forschungen*, pp. 59 to 78, and to the illustrations from photographs given there and in *Petra und seine Felsheiligtümer*, pp. 149 and 152.

I. THE ROCK-FAÇADE. PLATE XVI.

The visitor to Petra, if he approaches the ruins of the old Nabatean capital through the winding gorge of the Sîk, will suddenly be surprised in the darkness of its wild rock cliffs by the quiet lines of an ornamental façade, which rises opposite to him at the back of a luminous opening. He passes into a widening of the gorge, formed by short ravines to north and south, and has now before him a high building hewn in rose-coloured rock. For only a short time in the day it has the glare of full sunshine upon its columns and ornaments ; but the reflective power of the rock-wall opposite to the façade creates in the afternoon an illumination much more beautiful than direct sunlight can effect. The shadows become so delicate and transparent

that none of the small details of the ornaments are lost. The architect knew what he was doing when he carved his work of art in the rocks of this narrow place. It would not lose by inspection from a distance, where its details could not be seen, and it must necessarily gain, and still gains by the contrast to its wild surroundings and the suddenness of its appearance. Standing in its lonely situation, the attention of the wayfarer could not fail to be fascinated by its grandeur and beauty. The huge shelter of a towering rock has protected it from the assaults of rain and wind from the west, and ensured for it a nearly eternal duration, were it spared from intentional injury.

Naturally our first attention is directed upon the façade of the "Khazneh," but it is useful to remember that the architecture of the monument solely consists in this façade, while its interior follows its own lines. The architect intended to give a grand and beautiful decoration to some tomb-chambers entered by a common open vestibule.

He designed the front of the vestibule like the front of a prostyle temple with four columns, entablature, and pediment ; but, to get a broader and more imposing façade, added to the portico one column on each side and extended the entablature accordingly, only letting it first recede, and then beyond this addition, again project in the original line of the front. A façade of this kind would have been possible for an independent building at the side of a low hill ; here it would have been quite dwarfed by the huge wall of rock towering over it. A second order was therefore indispensable, above the first one, and the question was, how to form it without destroying the impression of the temple façade, the nucleus of the whole building. The architect added first an unbroken attic, which really accentuates the independence of the lower order, but at the same time could serve as a base for another. The upper order might have consisted of a simple colonnade, but its weight would have pressed heavily upon the Temple façade, and it seemed better to let the colonnade recede in the centre, in correspondence with the vestibule of the lower story, and to put a small round Temple in the middle of the open space. In order to unite the three pavilions, which now appeared in the front of the second story, the two side pavilions received broken pediments,*

* Such broken pediments appear at Petra on the triclinium below the Tomb with the pyramids, one tomb at El Farasa and the back of the Town Temple, besides the direct imitations of the Treasury.

whose rising lines pointed exactly towards the top of the "tent roof" of the central pavilion. Thus a second temple rose over that in the lower story. And if this last was in fact no real shrine, but the entrance to a tomb, the round temple of the second story had the full appearance of a sanctuary, being adorned in its front by the figure of the goddess Isis,* who seems to stand there like the mistress of the whole building. This combination of the front of a temple as lower story, with a colonnade encircling a round pavilion as upper story, has been imitated at Petra in the so-called Temple of Ed Deir and the Corinthian Tomb, but is, as far as we know, without any parallel elsewhere. In wall-paintings of Pompeii the round Temple is found in connection with a peristyle colonnade, but never as the second story of another building. This idea seems to be the original invention of the architect of the Khazneh. It is against all classical custom, but it suits the place, and its decorative effect is happy. It would not be easy to propose a better solution of the problem with the resources of Hellenistic art.

2. THE GROUND PLAN. PLATE XV.

A central hall with three side-chambers, behind a vestibule itself flanked by two side-chambers, represents a system occurring not at Petra alone but elsewhere for tombs. Von Domaszewski has asserted that the whole interior was meant as a shrine of Isis, whose image appears in the façade; but he was not able to explain why this temple has the ground-plan of a tomb. It is true no graves have, up to this time, been found in its chambers. But this only makes it possible that the tomb either was only a monument for a deceased person buried elsewhere, or that its use was prevented by political revolutions. Both possibilities can easily be explained from the history of Petra. The right northern side-chamber of the vestibule contains nothing special besides a recess in the back-wall (1·39 metres broad, 2·65 metres deep, 2·43 metres high), with two low partition walls (only 0·43 metres high), which seem to have borne a cover, but leave the three narrow slits in their sides open towards the front.

Nobody has until now been able to explain the object of this arrangement. No dead body could have been deposited in these narrow places. The

* Explanations of the other figures decorating the façade and its roof are given later on.

peculiarity of the other side-chamber is its irregular shape, the reason of which was perhaps the inferior quality of the rock in the front, or that some older chamber, lower down, whose entrance has not yet been made visible, prohibited the extension of the chamber in the normal direction.

The Central Hall was intended to be square, though the dimension of 22 metres is not quite the same on all sides. Its three small side-chambers are not all of the same shape. The chamber at the back alone has a true square room of about 3.40 metres each side, with a special entrance; the other two are only very deep recesses, equal in width to the entrance of the back chamber; they give one the impression of having been left unfinished. The intention was perhaps only to adorn the side walls by their entrance. According to Petra custom, graves might have been expected in the floor of all the side-chambers; the grave of the man of first rank in the back chamber of the Central Hall. All the floors are now covered by a thick layer of sand and manure, it does not seem likely that graves will be found, but no thorough investigation has so far been made.



UPPER STOREY PLAN

FIG. 1.

3. THE UPPER STORY PLAN.

The disposition of the columns of the Lower Order depends upon the division of the front into five parts. The distance from the centre of the outermost column to the centre of the next column is about $4\frac{1}{2}$ metres. The same distance taken five times comprehends the whole colonnade. But the width of



full $4\frac{1}{2}$ metres was given to the intercolumniation of the middle in order to render the Principal Entrance visible. The position of the columns was accordingly shifted, so that not their centres but their edge towards the centre fell within the dimension of $4\frac{1}{2}$ metres. A corresponding arrangement controls the upper order, only that the two central columns are not, as below, without the central fifth part, but within it. The same dimension fixes the depth of the receding part of the colonnade in the Upper Order. There are about $4\frac{1}{2}$ metres between the centre of the column at the outer angle and the centre of the twin column at the inner angle. A little more than $4\frac{1}{2}$ metres, namely, 4.70 metres, is the diameter of the round pavilion without its columns. Only two-thirds of the pavilion stand free, the back disappears in the rock. Its columns are disposed as if the whole pavilion had five columns. One intercolumniation is in the front, two on the sides, the remaining two are not executed. The pedestal in the front intercolumniation has convex lines in the front and at the sides, probably to give it a variation from the other pedestals; perhaps with the intention of making it clearer that it belongs to the round pavilion. The pedestals at the sides of the pavilion did not get this distinction, with which they are shown, by mistake, in the plans of Hittorf and Von Domaszewski, for their figures did not deserve such distinction.

Some irregularities occur in the details. The distance between the edge of the cornice of the attic and the hind wall in the back part of the portico is on both sides 6 metres, but, by a curious mistake, the pedestal itself projects much more on the right side. The breadth of the three pedestals in the right recess is alike (1.60 metres); in the left recess only the pedestal at the back wall has the same dimension, the other two are broader, but even they are not alike. The plan shows other irregularities in the ground lines of the receding walls. Nothing has been done to increase the depth of the receding parts by a perspective arrangement.

4. SECTION, LOOKING SOUTH. PLATE XVII.

The section shows above all the noble proportions of the lower story, its vestibule and its central hall, with a height of 12 metres (like its length and breadth); and likewise the subordinate character of the side chambers with 4.30 metres height. The floor of the vestibule is 1 metre higher than the front terrace; the floor of the Central Hall 1.50 metres higher than the vestibule; and the floor of the side chamber again 0.50 metre higher than the

Central Hall. The exact relative heights were not known before the investigations of Dr. Mackenzie. He found that not four but eight steps led to the principal entrance, and not two but four steps from the Central Hall to the side chamber in its back wall. The steps from the terrace to the vestibule could only be inferred from the height of the basement, on account of the total destruction of its outer edge. It is to be regretted that the height of the rock terrace over the level of the gorge could not be ascertained. As it will be at least three metres, other steps must have been the means of approach.

The general proportions of the façade are clear enough. The Lower Order from base of columns to cornice is 15.52 metres high, the Upper Order 11.85 metres, that is, about three-quarters of the first one. The attic between both measures 3.20 metres, that is, one-quarter of the Lower Order. If we add the attic to the Lower Order, its proportion to the Upper Order becomes as 5 to 3. The roof of the round pavilion has, with the urn, a height of 8.05 metres; perhaps, when the top of the urn was unbroken, 8.50 metres. This gives to the whole façade the proportion of 5 to 3 to 2. Its breadth is 24.90 metres, which would make the average proportion of the breadth to the height (without roof) as 6 to 8. The remark is obvious that the cubit of the Nabatean architect must have been very nearly 0.5 metre, since all dimensions can easily be given in metres. It is for this reason that these notes exclusively make use of this scale.

The proportion of the columns of the Lower Order is 1 to 9, of the Upper Order 1 to 8. The first proportion is found again on the columns of the Temple of Artemis at Jerash (according to Schumacher), and of the Temple of the Sun at Baalbek (according to Puchstein). The columns at the "Town Temple" at Petra have, according to Kohl, only 1 to $8\frac{1}{2}$, the Olympieion, at Athens, 1 to $8\frac{4}{5}$. The columns are shorter than is usual in classical and in Roman art, where proportions of 1 to 9.5 and 1 to 10.5 are preferred. The shafts, which have no entasis, diminish only from 1.40 metres to 1.30 metres in the Lower Order, and from 1.10 metres to one metre in the Upper Order, which is much less than is usual ($\frac{1}{7.5}$), and even less than the above-mentioned columns of Jerash (1.45 metres to 1.28 metres). The height of the capitals of the Lower Order is equal to the diameter of the shafts at the base, which is regular; but the capitals of the Upper Order measure only $\frac{3}{4}$ of the smallest diameter of the shafts. The entablatures of both orders are almost equally high. But in relation to the length of the columns the entablature

of the Lower Order is about $\frac{2}{9}$, that of the Upper Order $\frac{1}{3}$, while $\frac{2}{7}$ are said to be correct. Thus the lower entablature seems rather light, the upper heavy ; but the architect may have taken into consideration the foreshortening of the vertical dimensions at such a considerable altitude. In Baalbek the proportion of $\frac{1}{5}$ seems to be the rule.

5. PRINCIPAL ENTRANCE.

The entrance to the Central Hall measures below 4·05 metres, above 3·85 metres wide, and 7·95 metres high, and was meant to be closed by double doors. Square holes in the angles behind the sill were to receive stones with a socket for the lower hinges of the door. Holes of another shape behind the lintel supported a beam with the sockets for the upper hinges. Nothing shows that the doors were divided in height transversely. The threshold sill, behind which the doors moved, has in its centre a curious cup hole with a channel leading to the right end of the uppermost step. Libations for the dead could be poured out there.

The entrance doorway is surrounded by an architrave, which consists of three fascias of different width. The first ends with a cyma-reversa, the third one with a cyma-reversa and a fillet. The cornice over the entrance is composed of bead and reel, egg and tongue, dentils, painted in red and white, and cyma-reversa in its lower part. Its corona has bead and reel, painted, egg and tongue, a cavetto and an overhanging fillet. Simple volutes form the consoles. Contrary to ordinary usage they diminish rapidly downwards. It seems to be equally unusual that the acroteria, consisting of an anthemion and scrollwork, project sideways. The wish to give the upper parts a massive appearance has received exaggerated expression.

The small opening over the cornice, 1·20 to 0·90 metre, could not bring much light to the interior, particularly as it lies in the shadow. But it conveyed air to the Central Hall. To keep off birds, it was closed by a grating, as is indicated by a small furrow in the sides.

6. THE ENTRANCES TO THE SIDE-CHAMBERS.

The entrances to the side-chambers of the vestibule, 2·30 metres broad, 5·10 metres high, could also be closed by doors. This is proved by the existence of a groove behind the sill and holes at the side of the lintel. Perhaps a wooden frame was inserted.

Three steps made visible by Dr. Mackenzie's excavation lead to a very narrow sill. Behind it succeeds a set-back of 1.45 metres width, into which the two valves of the door, which was here 2.80 metres broad, found place when opened. Four other steps lead up to the floor of the chamber. As the lowest step is only 20 centimetres broad, one might suggest that the whole space between the sill and this step was filled out with wood. But perhaps the step had been broader, and was cut shorter to give room for the doors. All these details were found at the northern entrance. The southern entrance has not been excavated.

Both entrances are adorned with Corinthian pilasters supporting a frieze-like lintel, and a cornice supported by consoles. Two clumsy acroterias, with fabulous birds, stand on the cornice and flank a circular opening 1.25 metres diameter, framed by an architrave (Plate XVII); other details are spoken of under No. 8.

Of the entrance to the side-chambers in the Central Hall (see No. 5) only the entrance to the back chamber had Corinthian pilasters, with a regular entablature projecting over the pilasters, with a Medusa in the frieze, and a pediment. In the side wall the entrances are only surrounded by an architrave supporting a pediment, with consoles in place of acroteria.

Only two steps lead to these side entrances, but four to the entrance to the chamber at the back, which even thus is marked out as the principal one. No indication exists that these three entrances could be closed by doors.

7. DETAILS OF CAPITAL, BASE, AND ENTABLATURE OF LOWER ORDER.

About the comparative height of the columns, capitals, and entablature we have already spoken under No. 4. The Corinthian capitals with two rows of acanthus leaves remind one, in the disposition of their scrollwork and flowers between the helices, of a capital in the Museo Nazionale at Rome, the origin of which seems to be unknown (see Durm, *Baukunst der Etrusker und Römer*, fig. 431). There is only an astragal, no cavetto, between the shaft and the capital, therefore the upper diameter of the shaft and the lower diameter of the capital are alike. The members of the somewhat flat-looking abacus are two bevels, a very stiff cyma-reversa and a low-crowning fillet. Evidently the strong moulding usual in the case was intentionally omitted. The base, with two tori, is of a simple shape, found also in the Casa dei Capitelli Colorati

at Pompeii, and in the temple of Artemis at Jerash. Plinths are wanting. The Ionic entablature has only two fasciæ in the architrave, as usual in Petra. The lower fascia is only half as high as the upper one. The top of the architrave consists of a cyma-reversa and cavetto. In the frieze the middle part is framed by a fillet and cyma-reversa, as below and above. Its ornamentation consists in canthari between winged panthers ending in scrollwork, seven times repeated. The projecting members at the end contained Medusæ. The cornice begins below with the boss for an egg and tongue moulding, then follow dentils and cyma-reversa. The corona, showing no recess in soffit, has again a boss for an egg and tongue, a cyma and an overhanging fillet. This also is an indication of a certain propensity to exaggeration. Over the projecting ends low pedestals support panthers, perhaps originally winged.

The pediment is filled with scrollwork, which surrounds a head, perhaps of a Medusa. Low pedestals bear the acroteria and the antefix. The first resemble the acroteria of the principal entrance, the latter consists of the symbols of Isis (disc and plume) between scrollwork. The attic terminates with a band ornamented with a row of 32 rosettes, and a plain cornice of cyma-reversa and fillet.

The pedestals between the outer intercolumniations, which support the images of the Dioscuri with horses, in relief, have a low plinth, a block twice as broad as high, and a cornice with dentils. A second pedestal of equal breadth bears the relief. Projecting bands under the cornice are a feature which appear again in other parts of the façade.

8. THE CAPITAL AND ENTABLATURE OF ENTRANCES TO OUTER SIDE-CHAMBERS AND OF UPPER ORDER.

The pilasters at the side entrances have a shaft without base and without ornament. The shafts, which diminish very slightly, have at their head a projecting band only known, in classical art, in the pilasters of Antæ, but unusual in other pilasters and columns; known also from wall-paintings at Boscoreale (see Kohl, *Kasr Firaun in Petra*, fig. 37). The capital, which is much shorter than the capitals of the Lower Order (*cp.* under No. 4), has only some acanthus leaves towards the sides, but its scrollwork, flowers, helices, and abacus resemble very much the same type. The architrave is suppressed. A frieze framed like those of the Lower Order, but without decoration, is surmounted by a cornice, which consists of astragal, egg moulding, dentils,

cyma-reversa, and a corona, with astragal and the boss of a cyma. The consoles are similar to those at the principal entrance. Broad pedestals bear the acroteria already mentioned above. The architrave of the circular window has a decoration also found on arches in Palmyra, which reminds one of an egg and tongue moulding, drawn out to a row of narrow arches.

Of the capital and entablature of the Upper Order (on which see also under No. 4) no detailed drawing is given, because no detailed measurements could be taken, as were done for all details of the Lower Order. They must be studied from the elevation on Plate XVI. There it will be seen that the capital much resembles the capital of the outer side entrances. Even the projecting neck under the astragal is not wanting. The columns have a base with only one torus and an astragal in the place of the second torus. The entablature has the same arrangement as in the Lower Order. The frieze is adorned with garlands, supported by Medusæ and heads of Satyrs. The antefixa at the base of the "tent-roof" are much inclined outward according to a propensity of the architect, already noticed. The projecting band of the "tent-roof" reminds one again of the neck of the columns. The capital, which is only carved completely in the front, under the urn, follows the type of the capitals of the Upper Order. The broken pediments are crowned by low pedestals with sitting eagles. It may be remarked that the pedestals at the lower ends, like the corresponding pedestals of the pediment in the Lower Order, are slanting towards the inner side, as if to prevent the feeling in the spectator that the acroteria could slide off, a new specimen of exaggeration in the use of a good optical rule. The two pedestals of the statues in relief in the front intercolumniations of the side pavilions are about as high as they are broad at the base. The other six are more slender (see also No. 3), the plinths of all, with the moulding connecting it with the block of the pedestal, are as high as this with its cornice, which is supported by a projecting band like those of the columns. A special pedestal supports the statue. Of the figures, the two at the sides of the central pavilion, and four at the side pavilions, represent Amazons flourishing axes, the two in the background of the recesses Victories, one offering a libation at an altar, the other holding wreath and palm branch. The impetuous dancing of the former and the quiet pose of the latter, together with the sublime attitude of the Goddess in the centre, form a happy contrast. This last carries a cornucopia in one arm, ears of corn in the other hand,

9. PERIOD OF THE "KHAZNEH."

Space allows but few words here. The subject is more fully discussed in my *Neue Petra-Forschungen*. The architecture and decoration of the façade are not classical, but contain nothing which might not be derived from the first century after Christ. The pomp of late Roman architecture is completely wanting, the style being more Hellenistic than Roman. Thus the time of such Nabatean kings as Aretas IV.; Philodemos, a contemporary of Christ; Rabbelos II. or Soter, at the end of the same century, seems very suitable to the erection of such a mausoleum, without doubt the finest of the whole necropolis of Petra, and imitated by the creators of the Deir and the Corinthian Tomb, but surpassed by none of them. The façade, like all the hundreds of tomb-façades at Petra, bears no inscription making known the name of the person for whom it was erected. But its costliness and grandeur seem to point to a man in a most prominent position; and the eagles, which keep guard on its roof, remind one of the emblem of royalty, which Nabatean coins show, probably in imitation of Seleucidan custom. It has been pointed out that the image of Isis, who appears as the protectress of the mausoleum, might speak more for a priest than a king; but Nabatean coins again exhibit the image of a goddess with a cornucopia as the emblem of royal Petra. It will, therefore, be open to conjecture that the "Treasury of Pharaoh" was the sepulchral monument of one of Petra's last kings, erected not very long before the Roman conquest (of A.D. 105) put an end to all royal splendour of this Hellenistic outpost between two deserts.



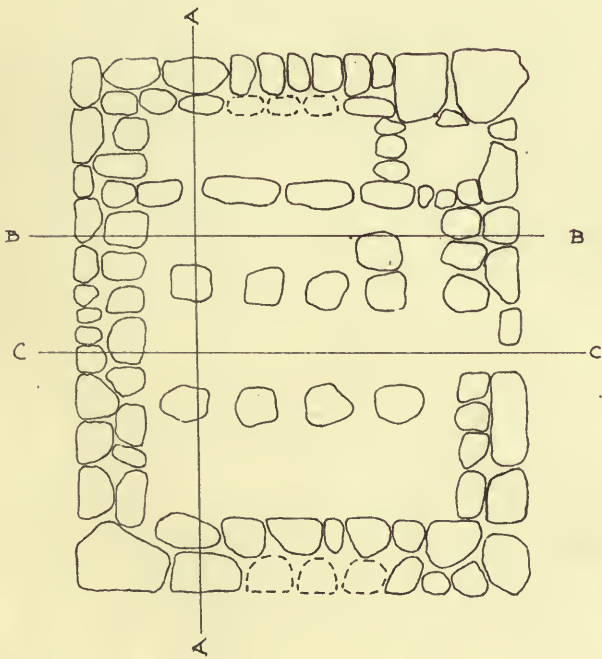
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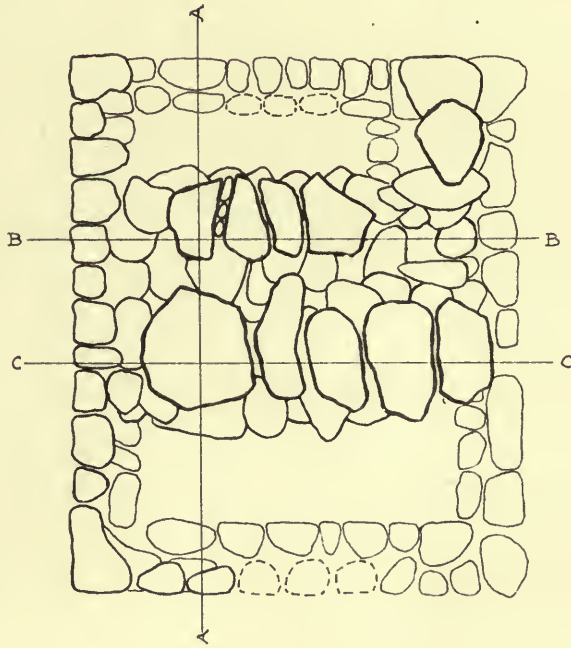
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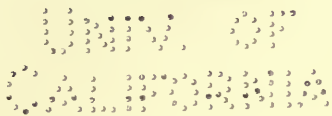


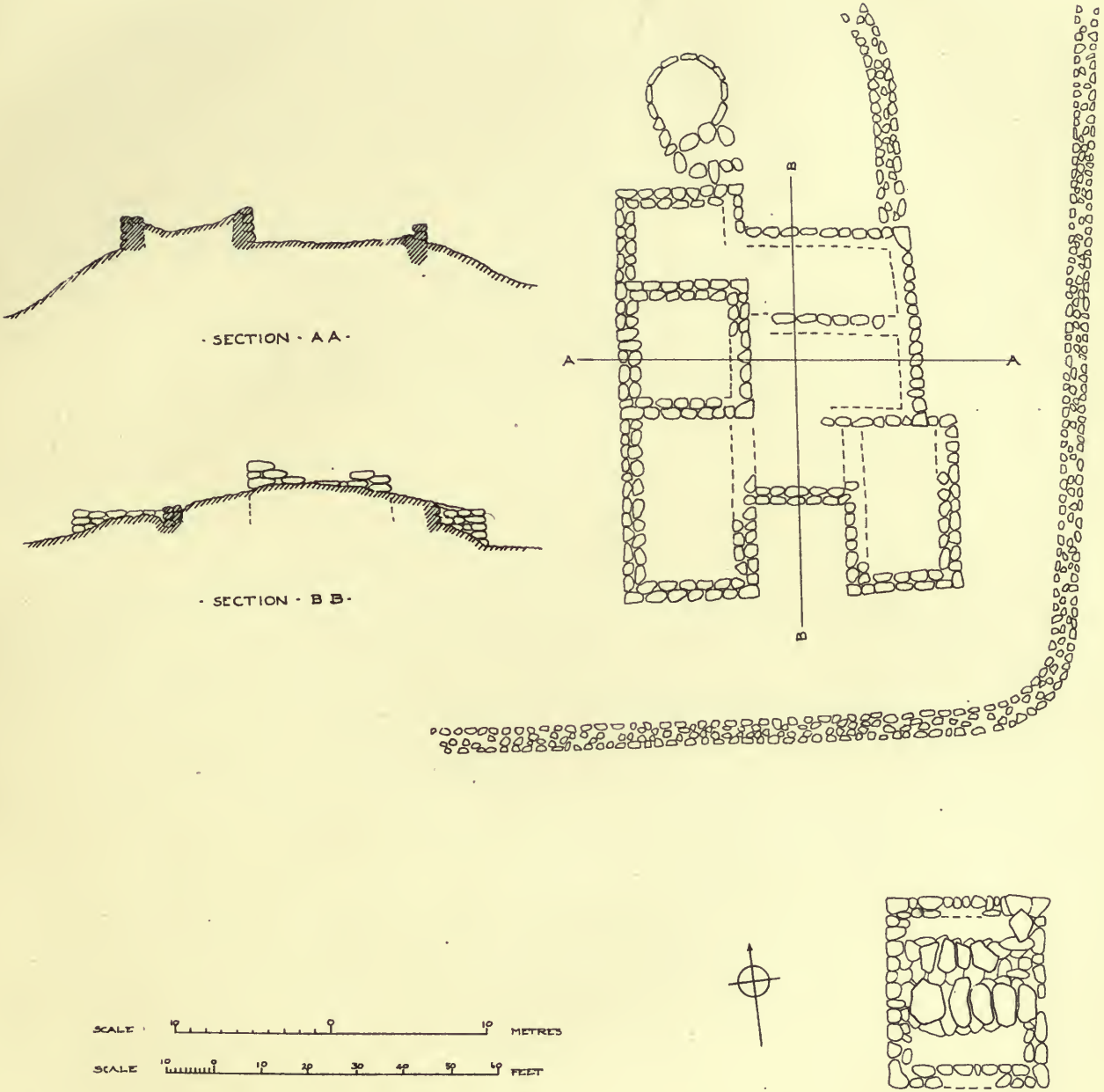
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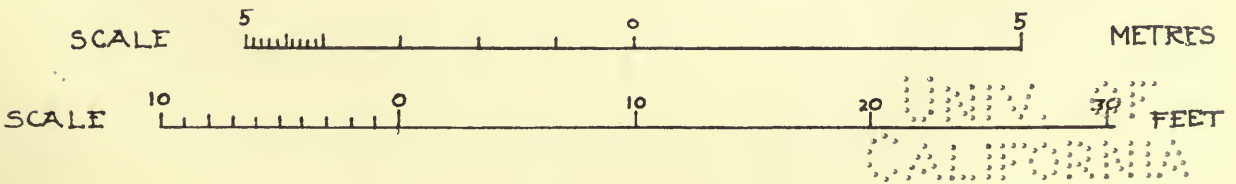
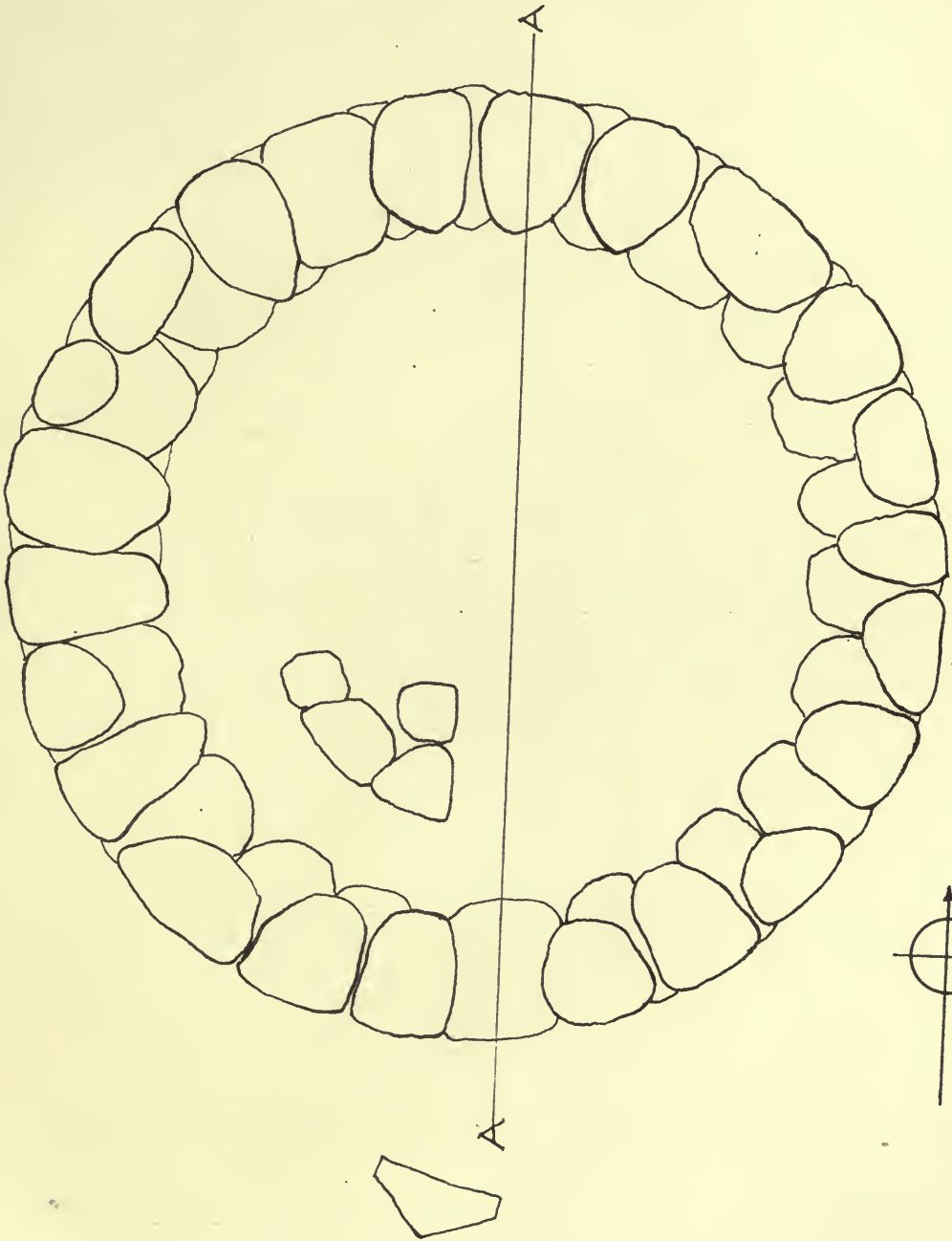
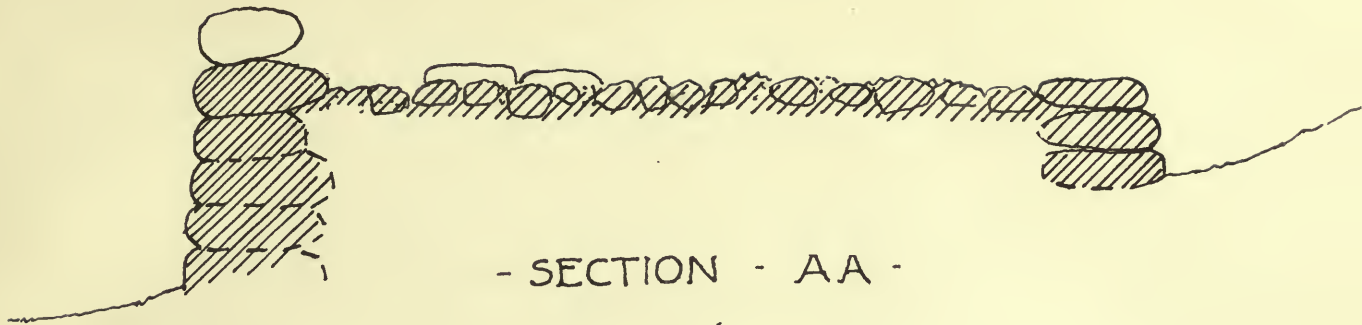
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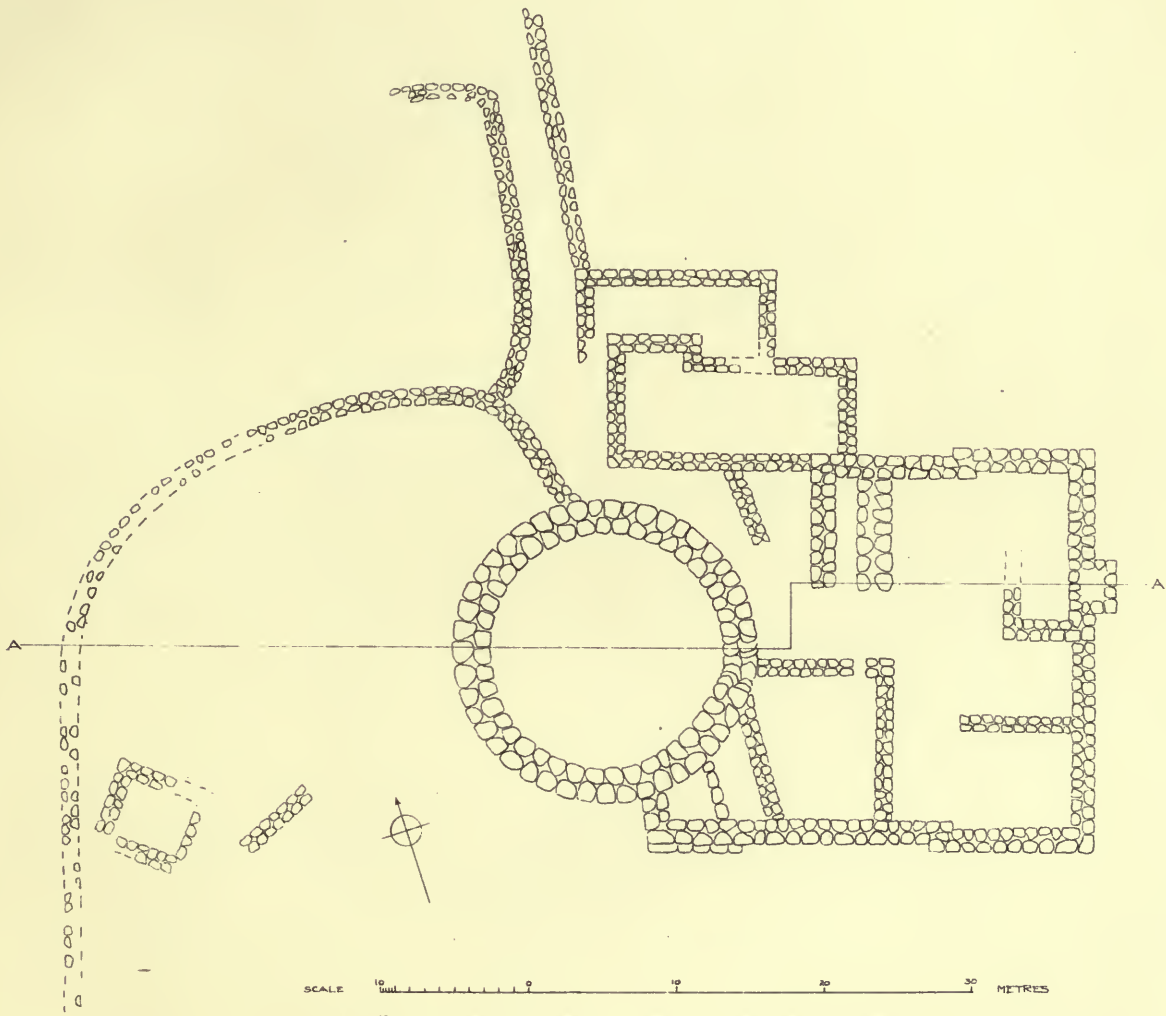
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DOLMENIC TOMB AT RABBATH AMMON.



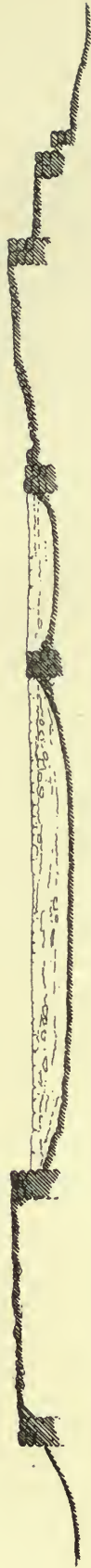
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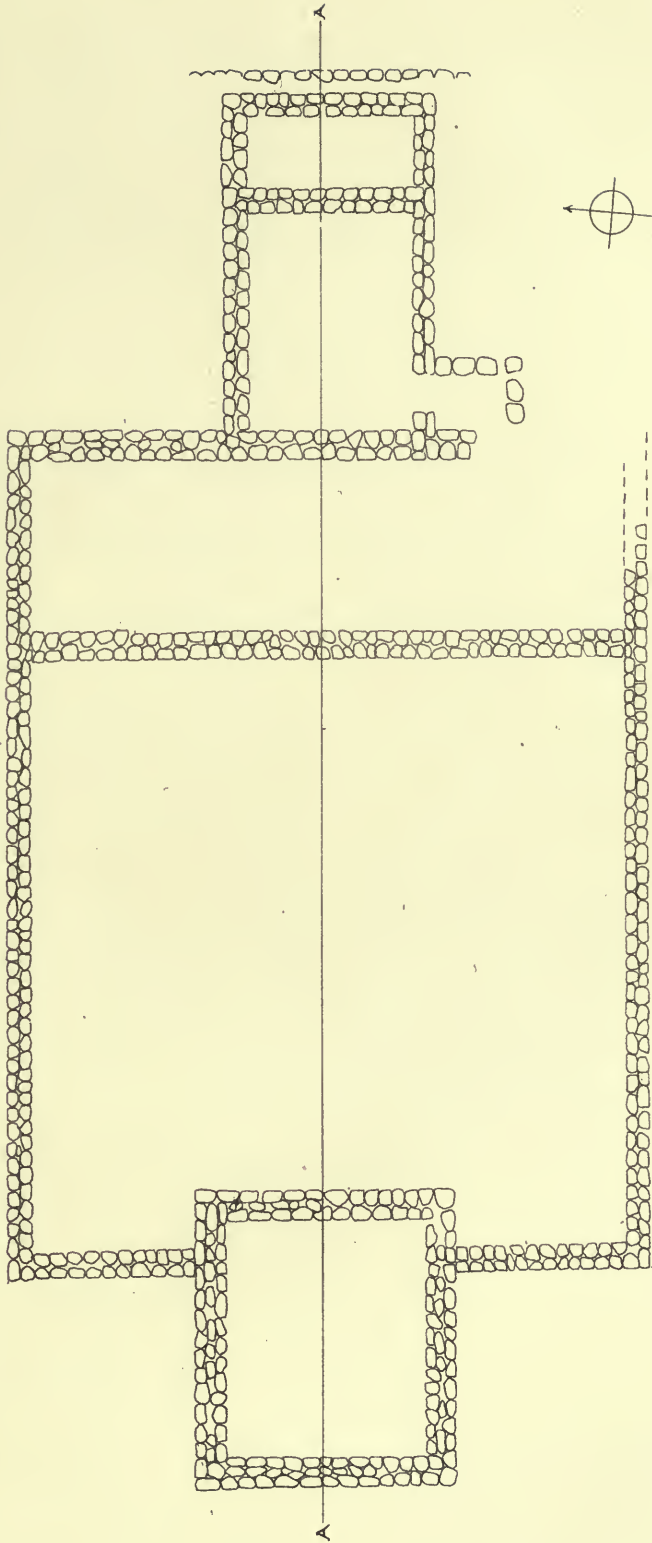
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RESIDENTIAL FORT WITH ROUND TOWER
AT RABBATH AMMON.

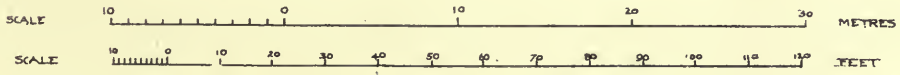
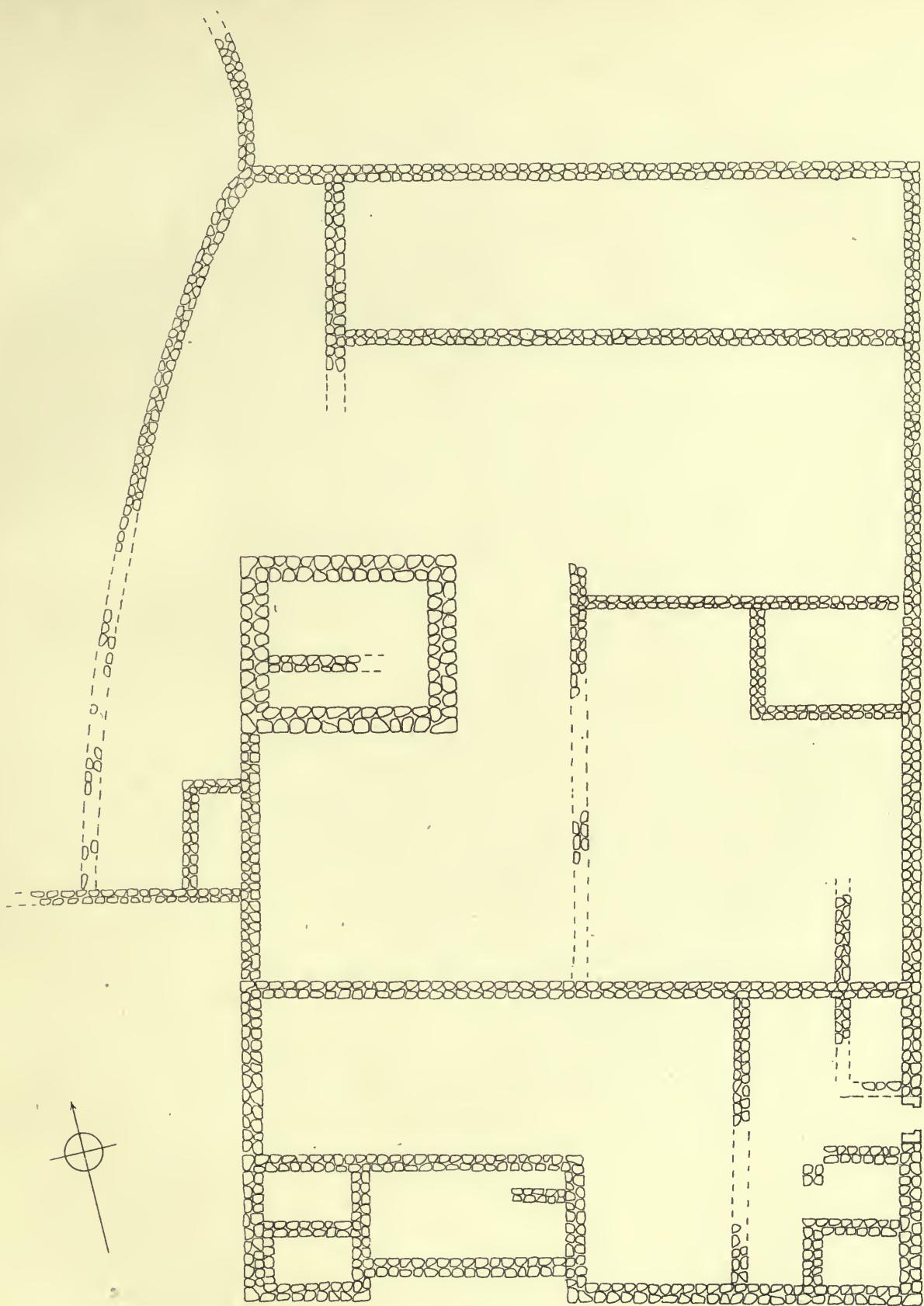


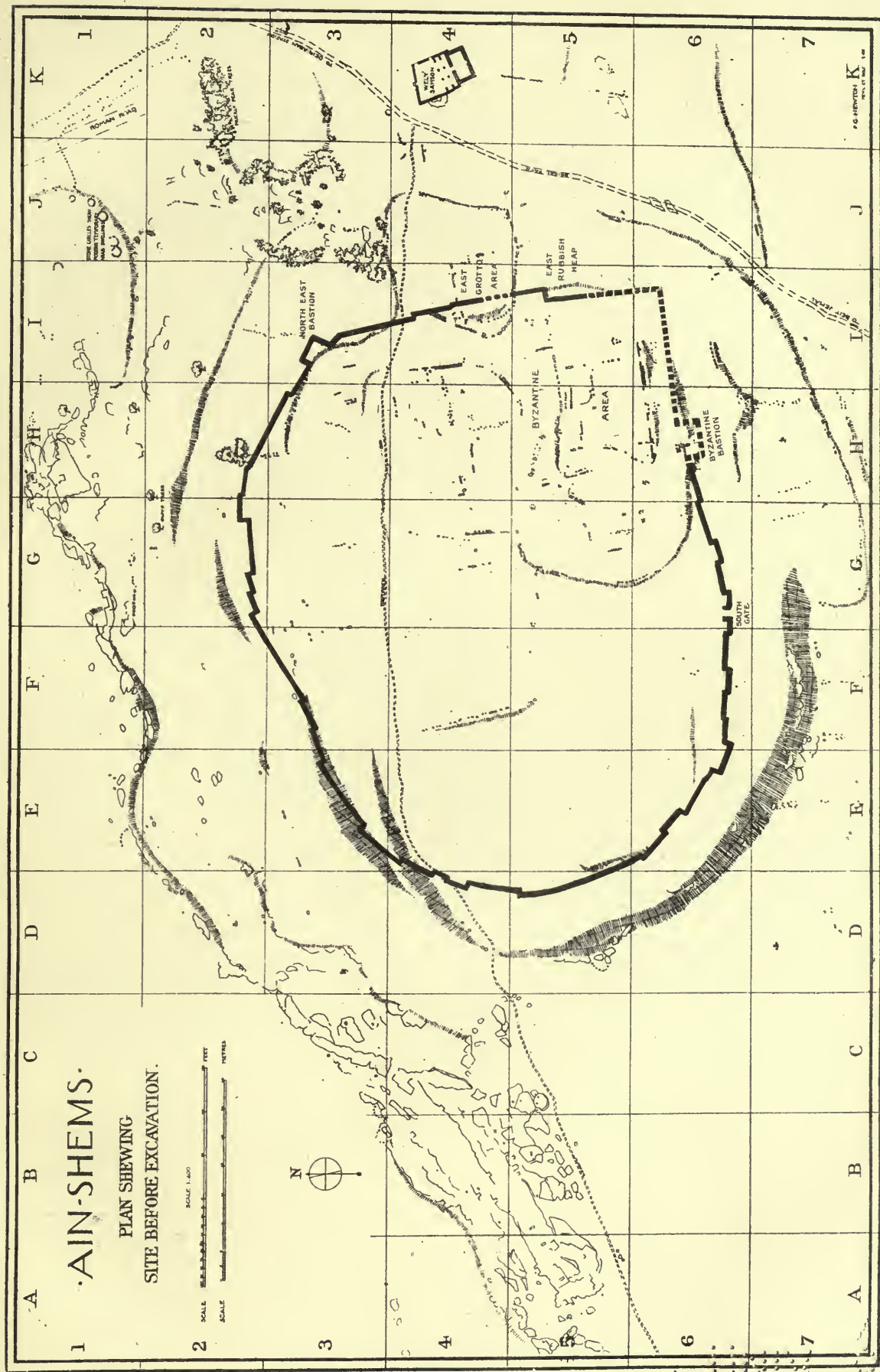
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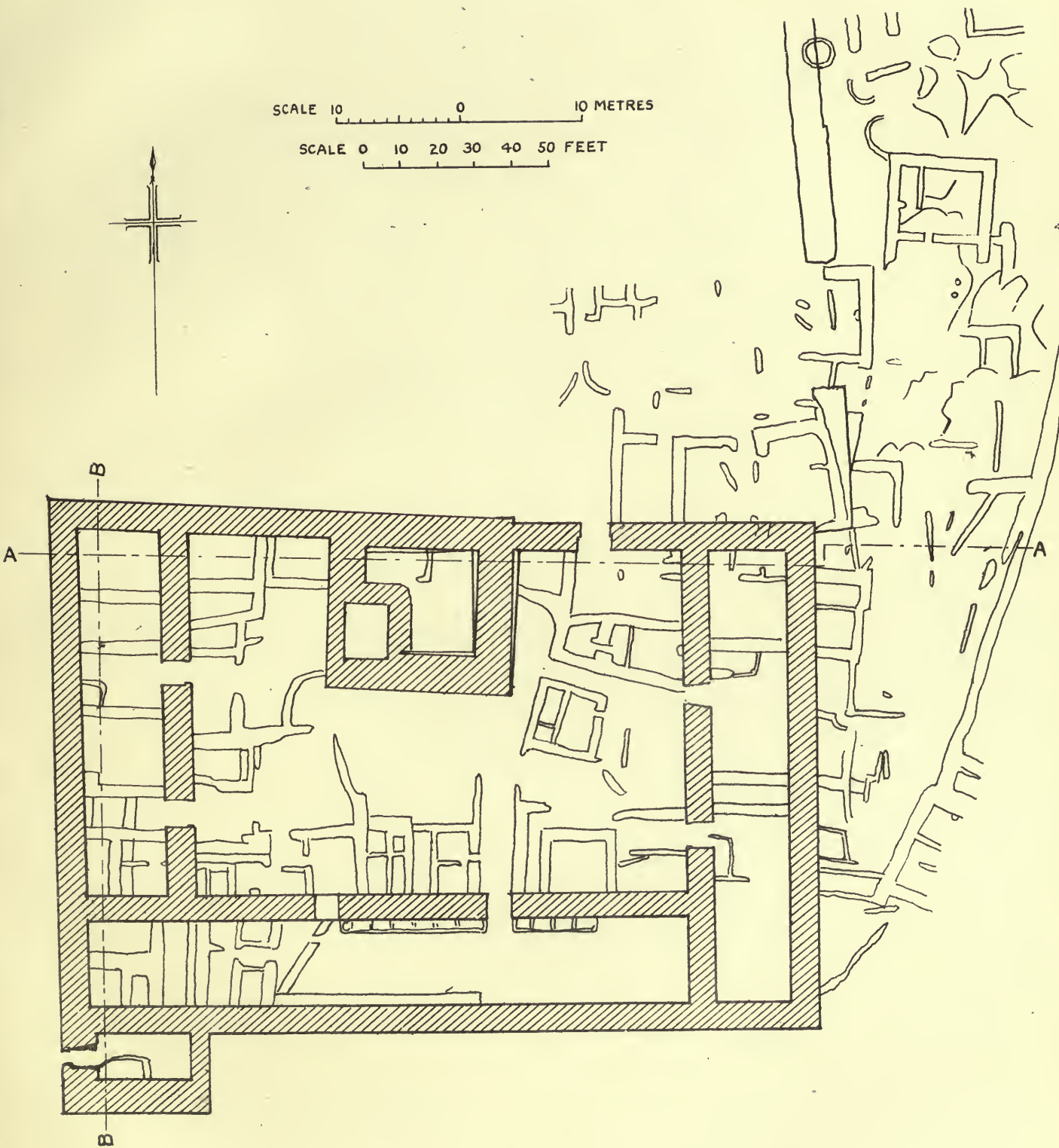
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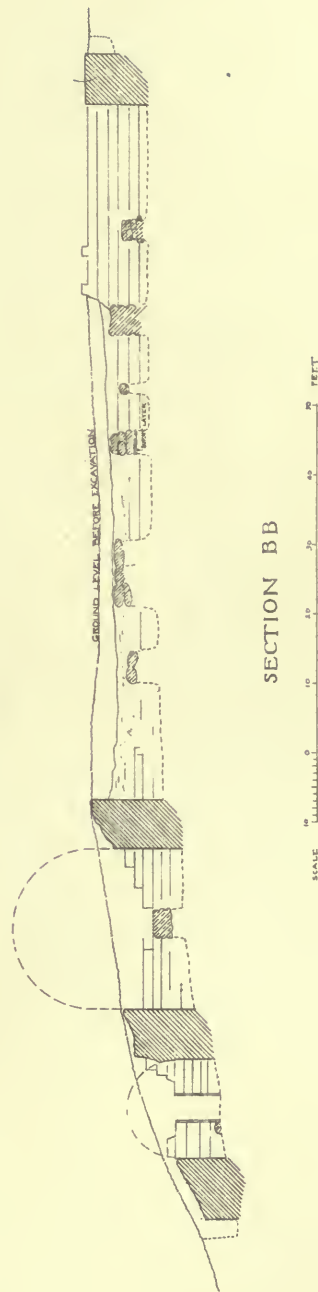
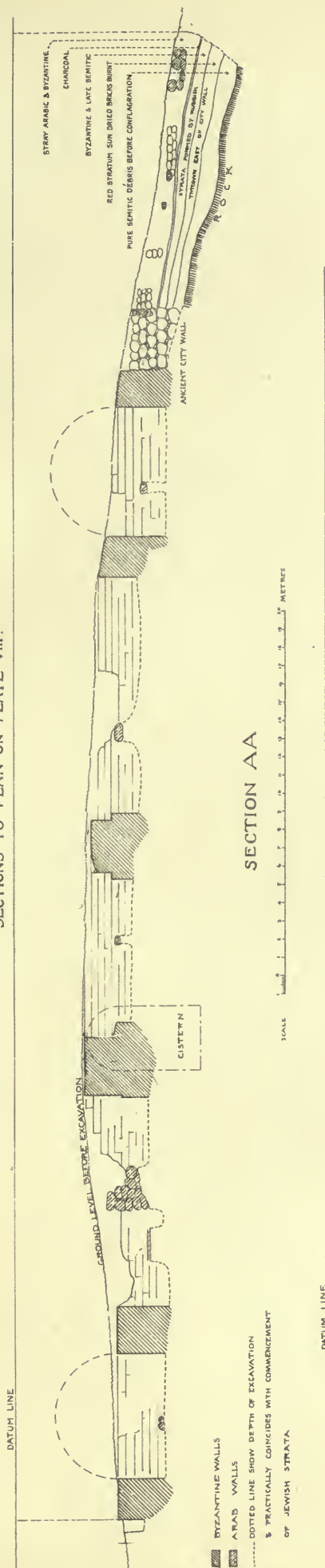
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BETH-SHEMESH



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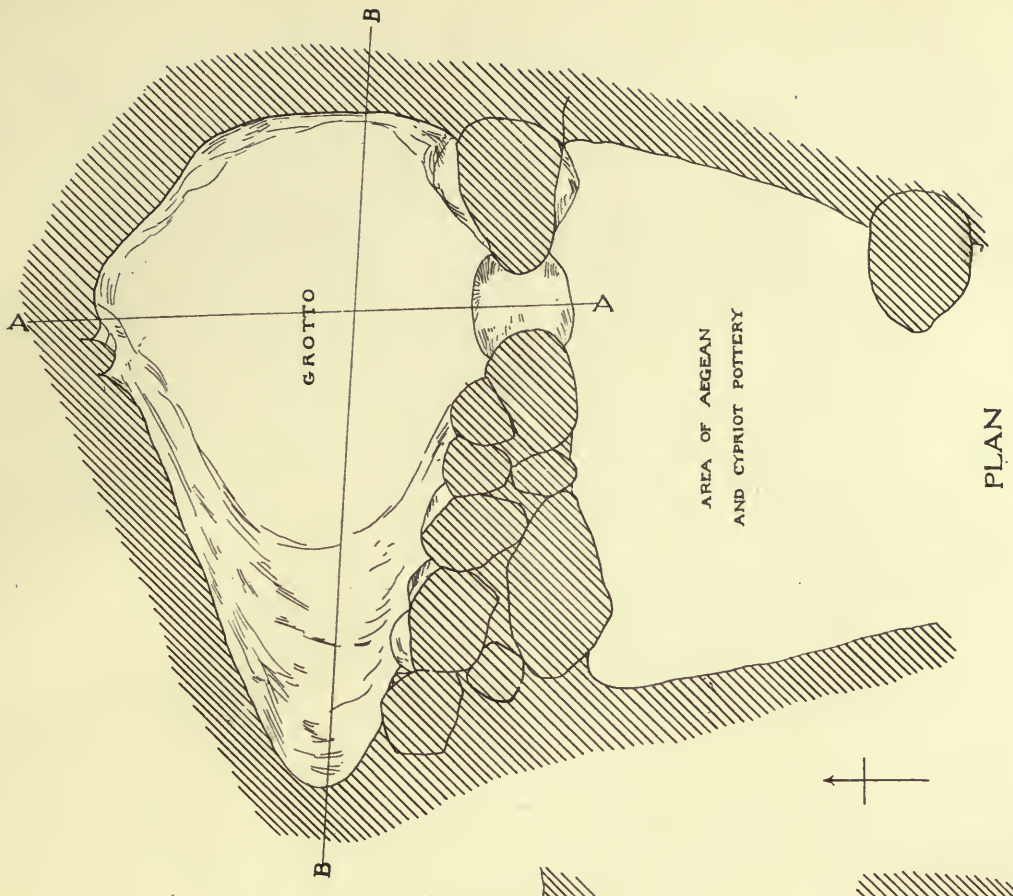
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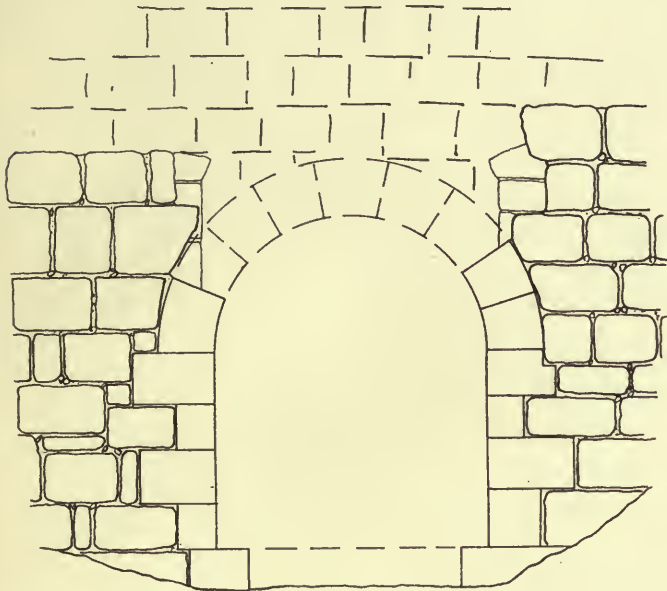
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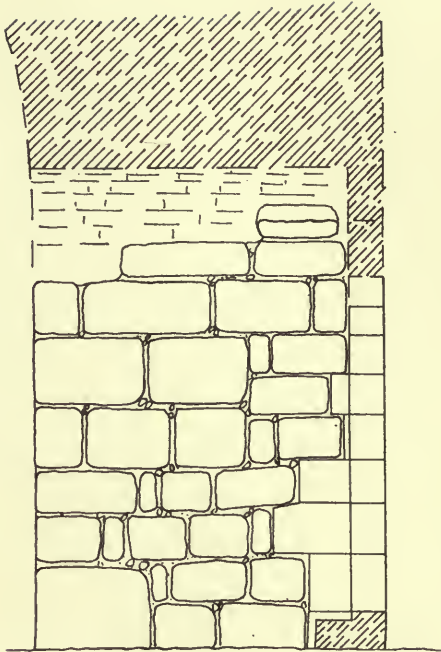
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NORTH ENTRANCE TO WEST GALLERY
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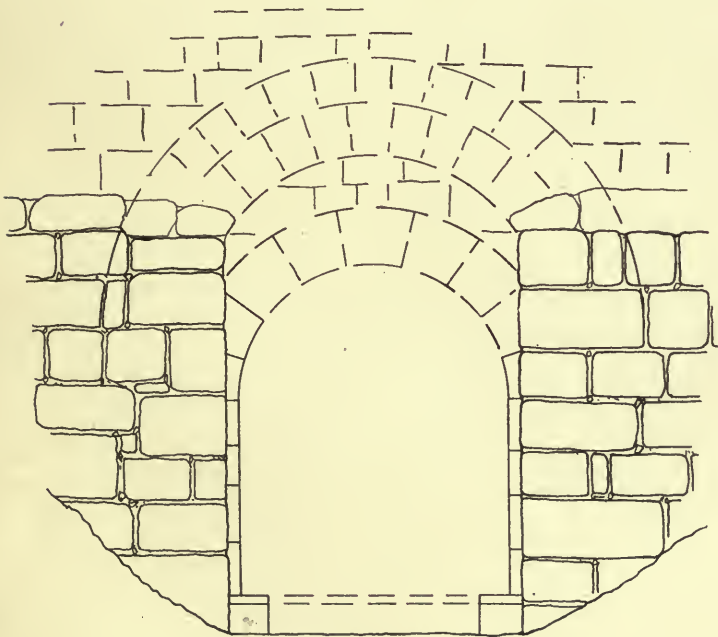


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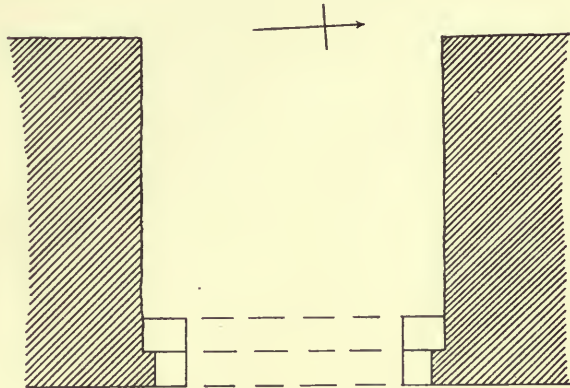


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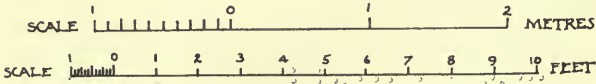


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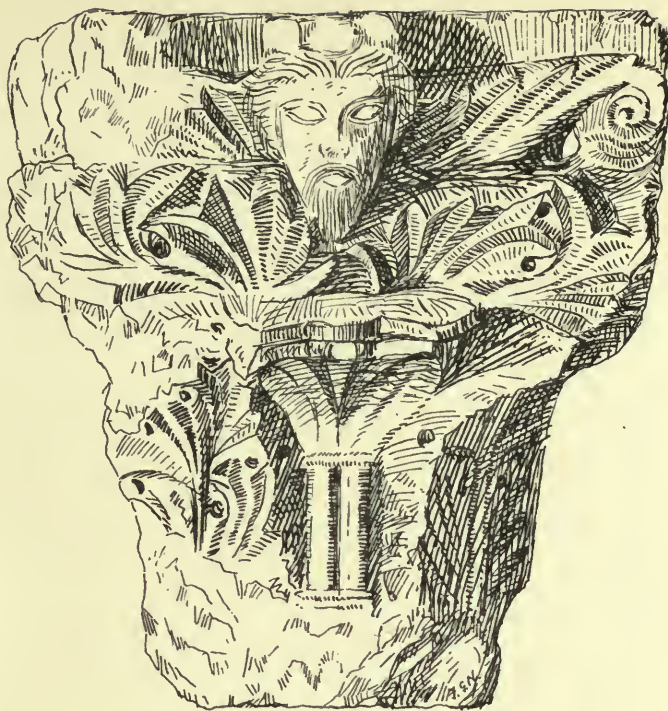


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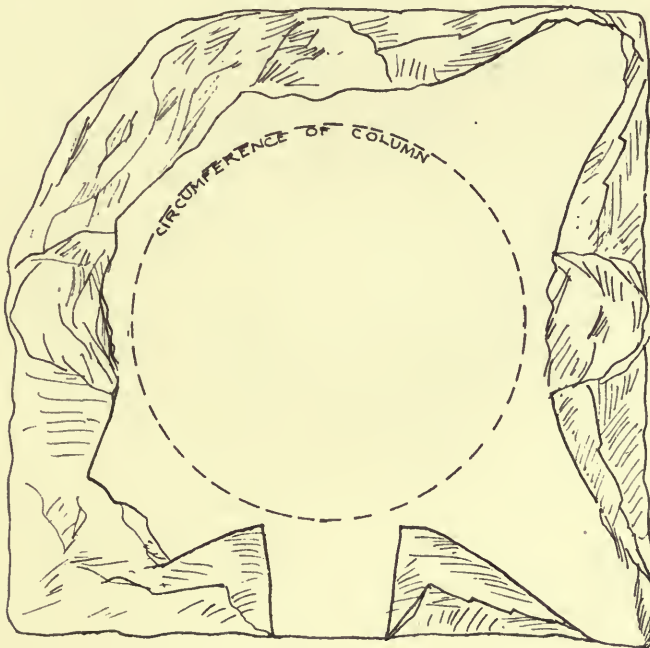
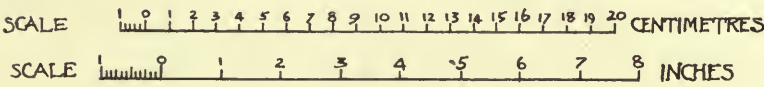
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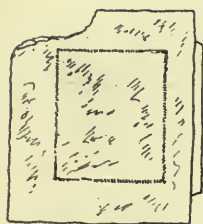


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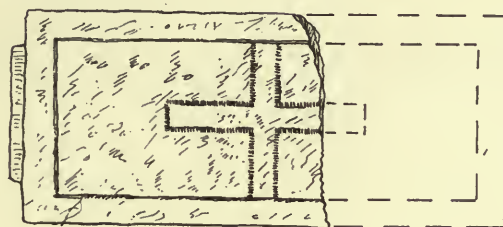
CAPITAL FOUND IN BYZANTINE AREA

BETH-SHEMESH

BYZANTINE ARCHITECTURAL DETAILS

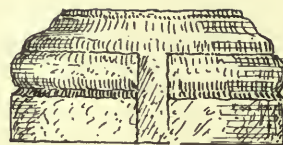


SIDE ELEVATION

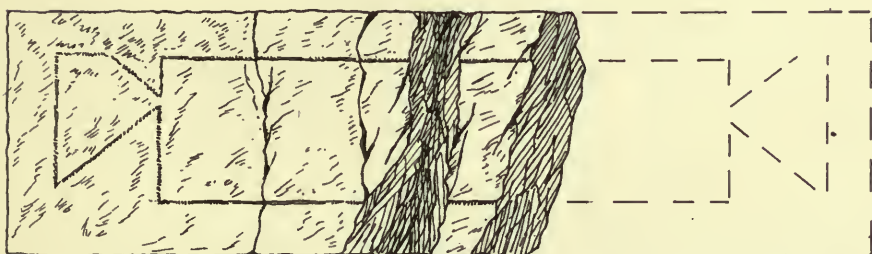


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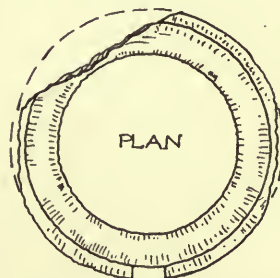
STONE BUILT INTO EAST WALL OF CISTERN
CHAMBER IN CONVENT



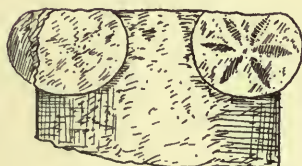
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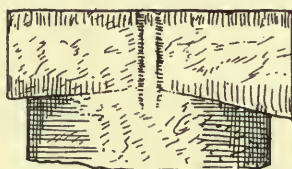
LINTOL STONE BUILT INTO NORTH-EAST ANGLE OF CISTERN CHAMBER
IN BYZANTINE CONVENT



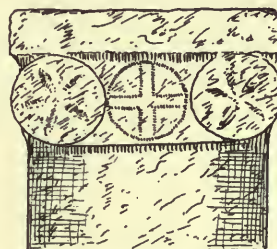
BASE FOUND AT WEST
END OF SOUTH GALLERY
OF CONVENT



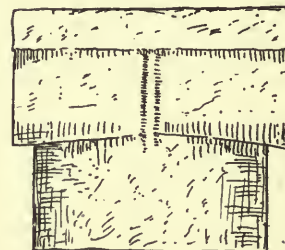
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SIDE ELEVATION



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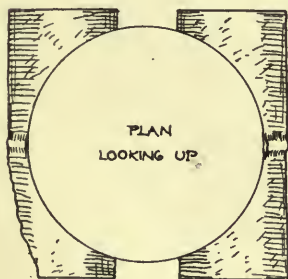


SIDE ELEVATION

IONIC CAPITAL

FOUND BUILT INTO LATE
ARABIC WALL IN SOUTH
GALLERY OF CONVENT

IONIC CAPITAL PLACED OUTSIDE ENTRANCE
TO WELY SAMSON ON RIGHT HAND SIDE

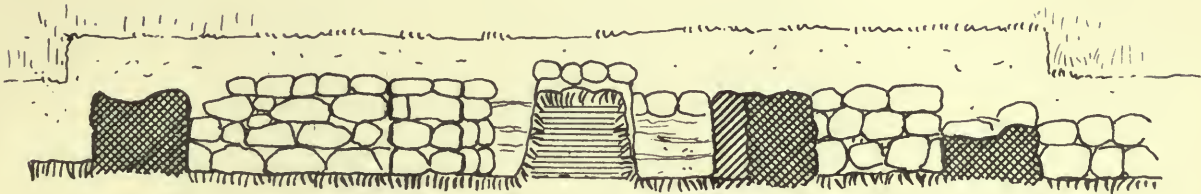


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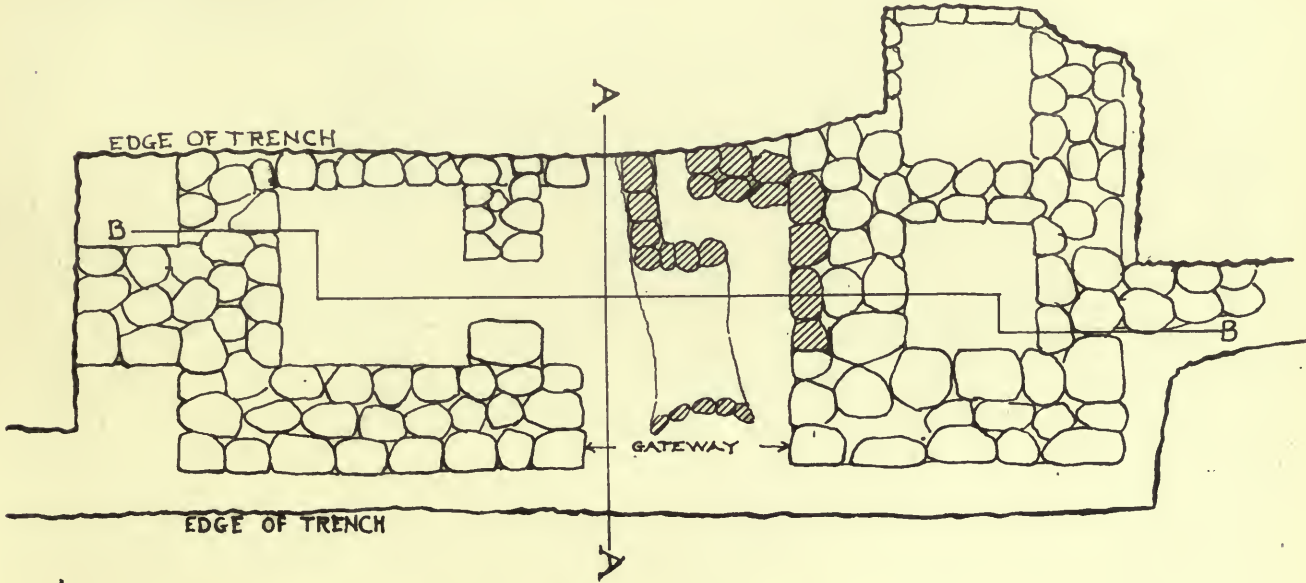
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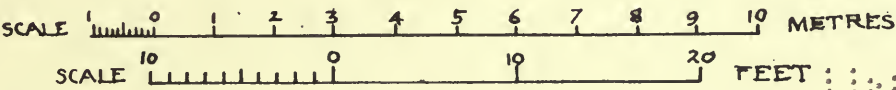
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



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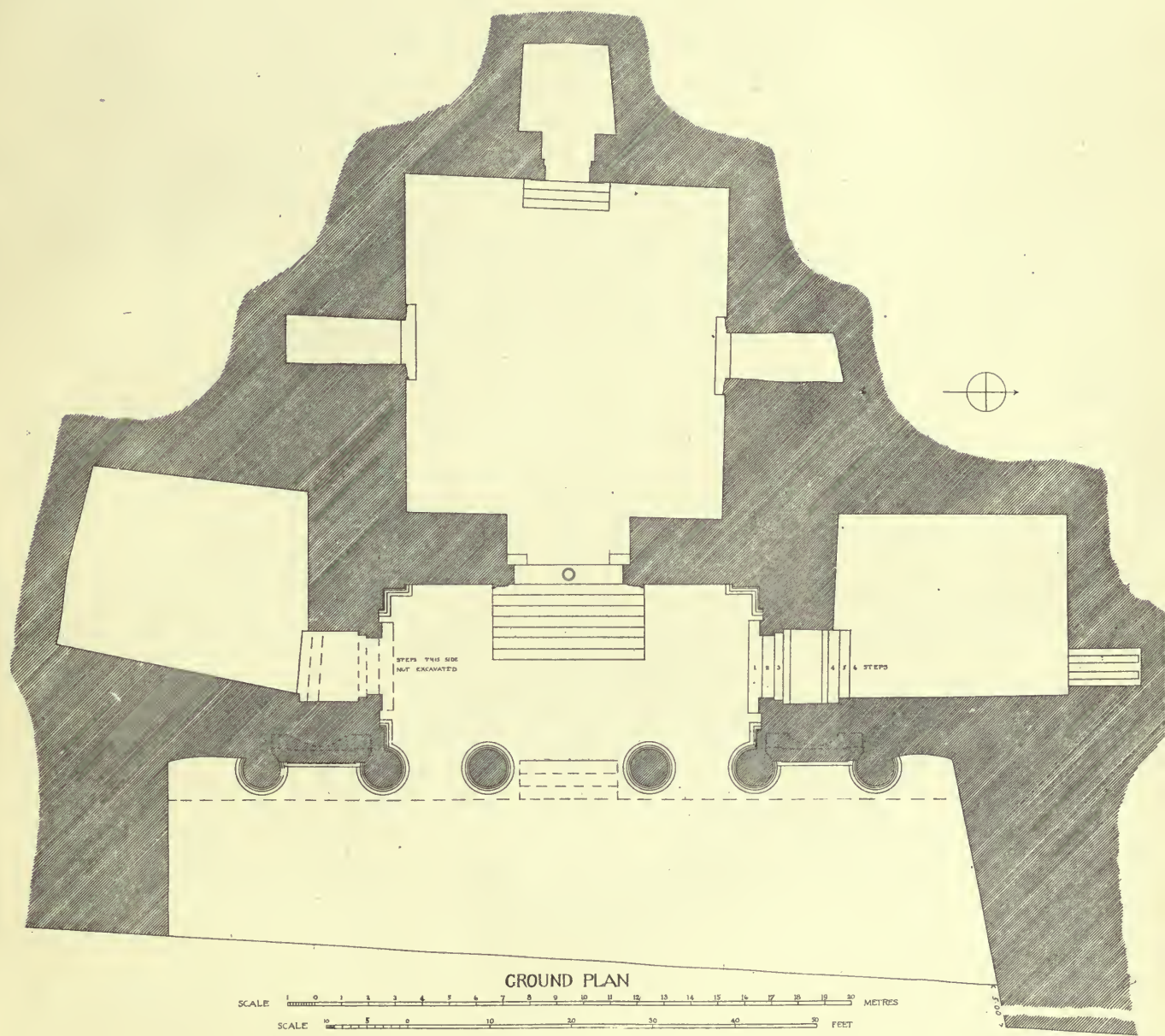


PLAN OF SOUTH GATE

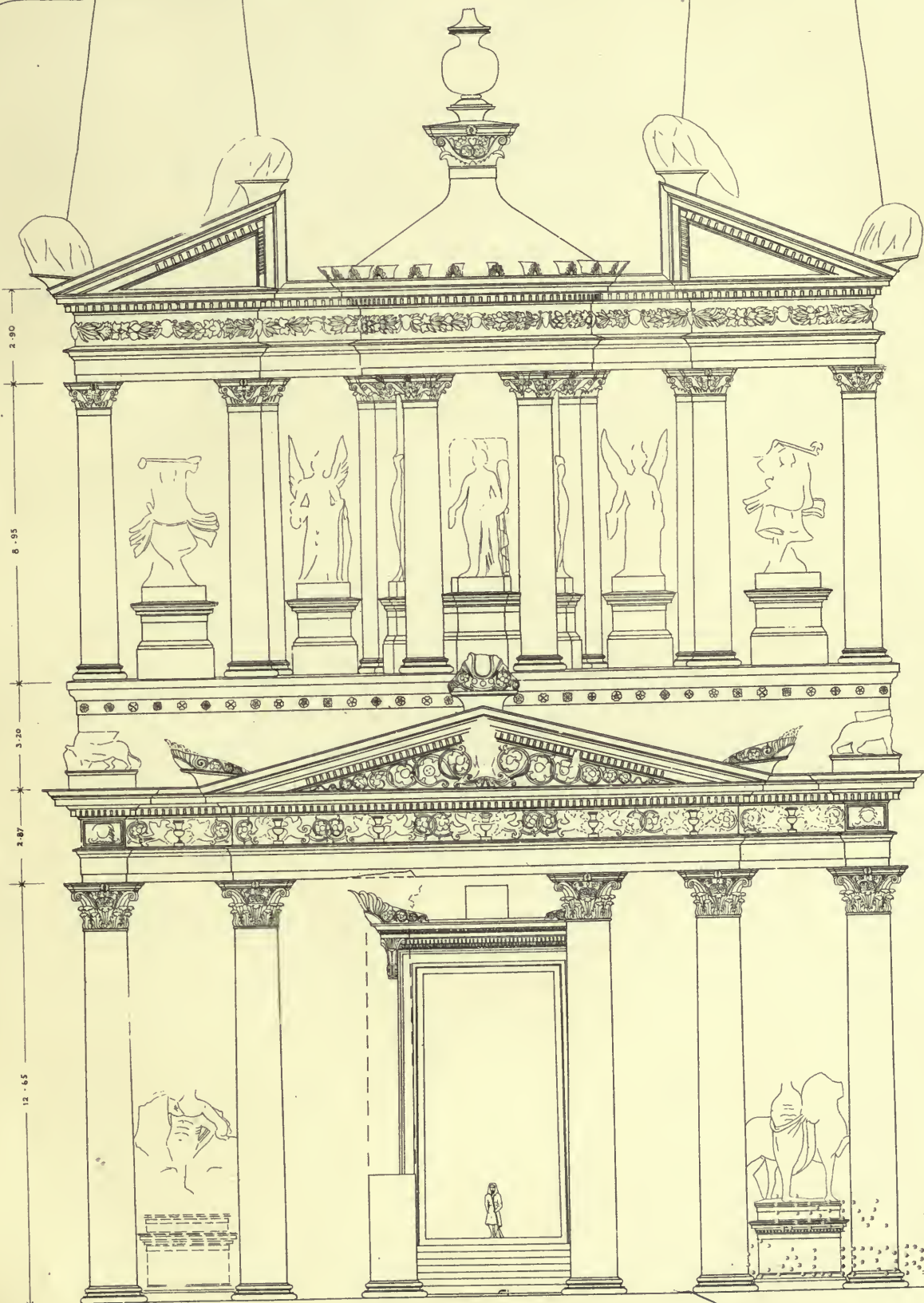
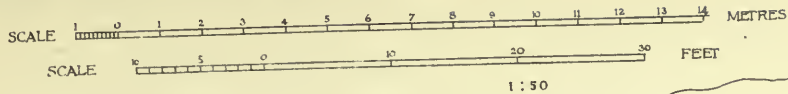


NOTE:— STONES OF ORIGINAL GATEWAY SHOWN IN OUTLINE.
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CALIFORNIA

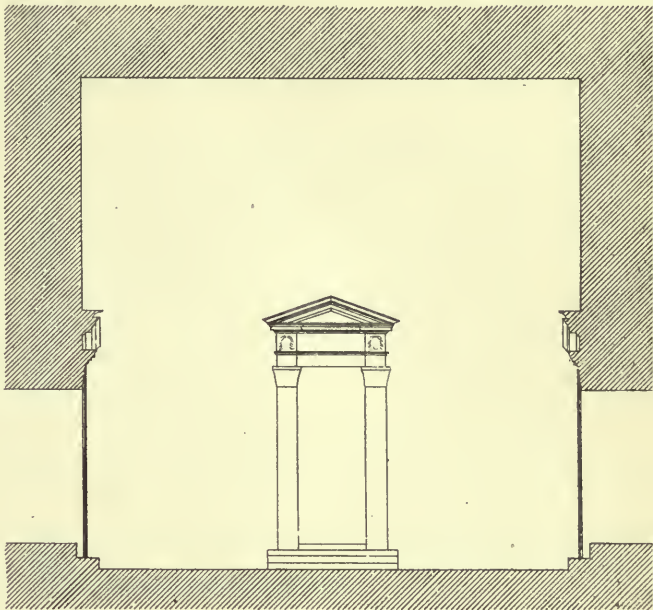
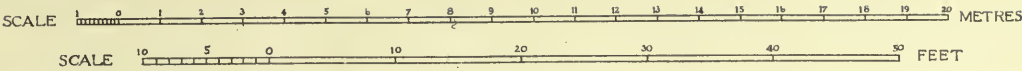


THE KHAZNEH AT PETRA

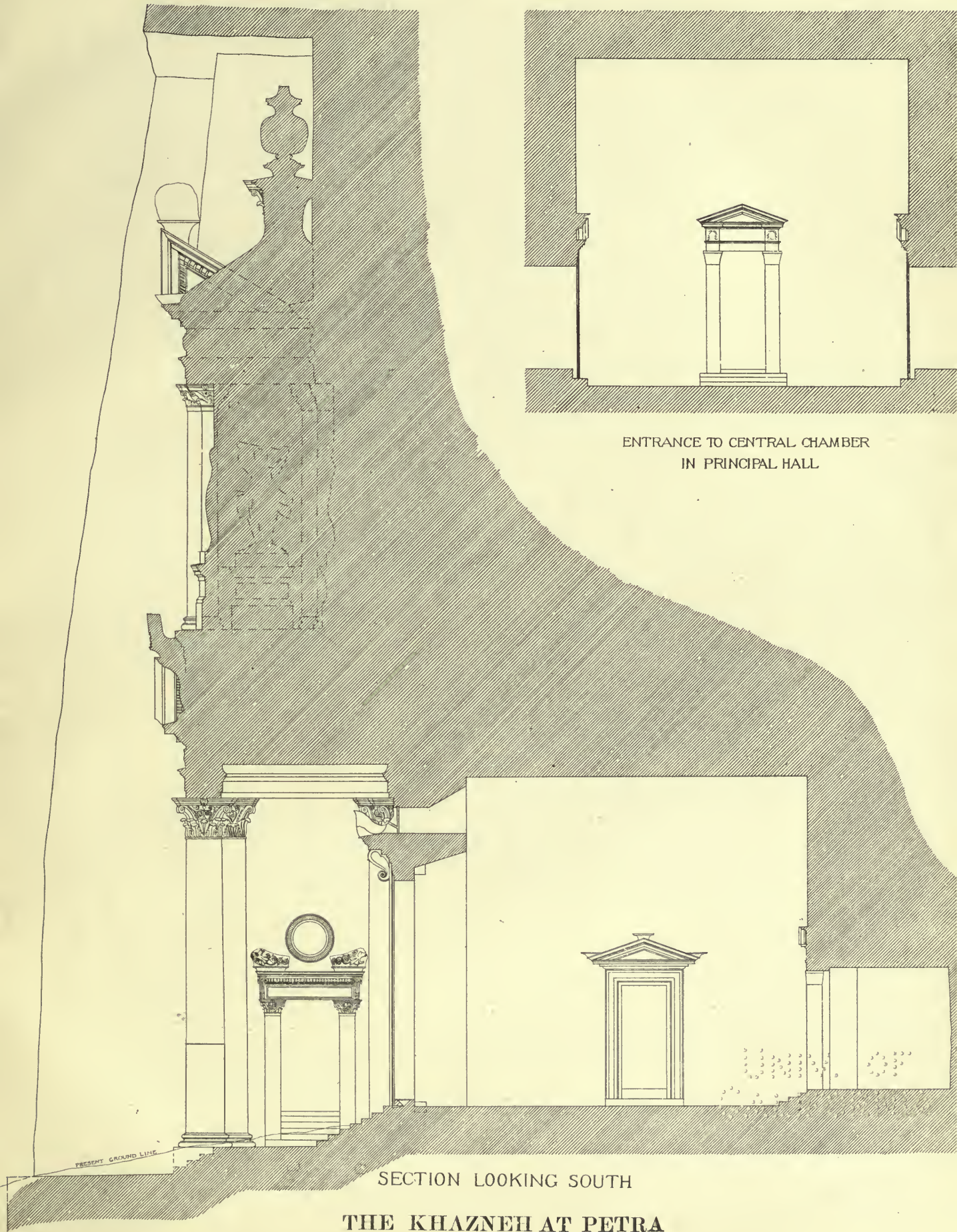


THE KHAZNEH AT PETRA

70. 1941
1942



ENTRANCE TO CENTRAL CHAMBER
IN PRINCIPAL HALL



SECTION LOOKING SOUTH

THE KHAZNEH AT PETRA

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